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ABSTRACT

Information is provided on issues related to the presence of international students in U.S. institutions of higher education, focusing on the general characteristics, goals, and attitudes of the foreign students in relation to those of their American counterparts. Five sections include: (1) general characteristics (gender, age, marital status, family background, and personal goals); (2) selection of institutions (quality considerations, recommendations of others, and financial considerations); enrollments (undergraduates, graduate students, full-time and part-time students, and college age population); (3) enrollments (opening fall enrollment and full-time equivalent counts by type of institution); (4) quality of student and institutional quality (student qualifications and degrees awarded by institutions of varying selectivity); and (5) students' aspirations and types of degrees (life and career goals, school goals, and types of degrees by level). Overall, foreign students are a small factor in American higher education. They are more similar to, than different from, American students in many respects. The tuition they pay in public institutions more closely reflects actual costs than what is paid by domestic students, and they often fill empty seats not sought by Americans. The impact of foreign students on American higher education is minute (in 1982, 22,631 bachelor's degrees went to foreign students and 924,246 went to citizens). The data reviewed gives little reason not to welcome foreign students to American institutions of higher education. Tables are included. Contains 8 references. (SM)

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the foreign student factor

Impact on American Higher Education

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Contents

Foreword .... **vii**

Introduction .... **xi**

Purpose xi
Description of Data Sources xii

I. General Characteristics **1**

Gender, Age, Marital Status 1
Family Background 5
Personal Goals 14

II. Selection of Institutions **21**

Quality Considerations 21
Recommendations of Others 23
Financial Considerations 24

III. Enrollments **29**

Undergraduates 29
Graduate Students 30
Full-time and Part-time Students 33
College-age Population and Enrollments 37
Opening Fall Enrollment and FTE Counts by Control and Type of Institution 38

IV. Quality of Students and Degrees Awarded by Institutional Selectivity (Quality) **47**

Student Qualifications 47
Degrees Awarded by Institutional Selectivity 57

V. Students' Aspirations and Types of Degrees........... 63

Life and Career Goals.. 63
School Goals.. 67
Types of Degrees by Field of Study.......................... 72

Summary and Conclusions.. 89

References.. 95

Foreword

Solmon and Young discuss some issues of very real concern to college and university administrators and trustees. Their data confirm the daily experience of institutional leaders committed to the education of students from abroad. When carefully laid out beside the trends concerning the average domestic undergraduate or graduate student, their data broaden our perspective. Of particular interest are the increasing number of students who, although foreign-born, are now permanent residents of the United States.

As president of a large public university, I am sometimes asked hostile questions by taxpayers or trustees on the impact of foreign students and whether or not "*They* are denying my child an opportunity to enter a particular major." What many of our fellow citizens fail to understand is that a number of those "foreign" appearing faces are *not* visa students who are here for one or more years to secure a particular degree. Some of those faces are native-born Asian-Americans, blacks, and Hispanics who are part of the increasing domestic diversity which resulted from the various Equal Opportunity programs established in the 1960s. Another seemingly "foreign" segment of our campuses is composed of students who grew up in Africa, Central America, Cuba, and Southeast Asia and later fled to the United States with their parents—or on their own—as a result of political persecution, revolution, and war. These students are now permanent residents and, increasingly, naturalized citizens. Various state legislatures have provided foreign students in public institutions of higher education with the same in-state tuition benefits available to residents. When one's daughter or son is not admitted to competitive programs in Business Administration, Computer Science, or Engineering, it is often easy to blame the rejection on the presence of "foreign" students, most of whom are no longer "foreign" in the legal sense, but just appear different from the prevailing white—or Anglo—majority.

Although there are always exceptions, the Solmon and Young data do support a concern that a number of us have expressed for almost three decades: "American colleges are increasingly educating the children of the upper classes of other nations." Because of the economic and social change occurring in the nations of the Third World, the United States of America has a vested interest in assuring that many more economically poor, but academically competent students with leadership potential have an opportunity to study in the United States during their undergraduate years. After their education, they will, hopefully, return home to make a difference in the development of their particular countries.

If this is to happen, Congress will need to authorize the private and public colleges and universities of America to offer a limited amount of campus-based financial aid to a small number of students from abroad. Competitive scholarships could be made available through the offices of the United States Information Service, which exist in most countries. U.S. campuses would then decide if the addition of non-resident foreign students is politically feasible. Some opposition to doing more to attract potential leaders from abroad during their undergraduate years arises from the perception that we have not done enough for economically deprived groups in our own country. To recognize that we must do more for those Third World students from abroad should not preclude action for other disadvantaged groups at home. This nation has a major interest in the advancement of all of these groups.

Solmon and Young do correct a few longstanding myths. One is that "all foreign students come here to major in Business or Engineering." Many do come here for that reason, but just like domestic students, they also study the arts, the humanities, and the social sciences. They, too, seek more from institutions of higher *education* than simply professional or career training.

Just as American students have changed their values, so too have students coming from abroad. The strength of conservative/far-right views among entering, non-resident foreign freshmen grew 66.7 percent between 1972 and 1982; the national norm for entering college freshmen was an increase of 25 percent over the same period.

While most of us know that satisfied "foreign graduates are an important recruiting source for many colleges and universities" (page 48), what most of us do not realize is that "fewer foreign students than domestic ones choose their college due to low tuition" (page 49). As Solmon and Young explain: "Since all non-resident foreign students must pay out-of-state tuition in public colleges, the cost variation for them is less than it is for domestic students" (page 49). The authors conclude "that low tuition is one of the two weakest factors in relation to the choice of institution for non-resident aliens" (page 50). In 1982, only 13.9 percent of the foreign visa students made their selection of a college or university on a "cost" basis. On the whole, foreign students do not select low-cost American institutions to attend, regardless of their academic reputation. However, sudden tuition changes can be important, as Great Britain learned when foreign enrollments dropped as a result of a special levy imposed in the 1979–80 academic year.

I have considerable doubts about the conclusion of the authors that, "by 1982, non-resident foreign students were even less concerned about financing college expenses than they had been in 1972" (page 54). The authors admit that most foreign students are not able to obtain a work permit. "In 1972, a surprising 14.5 percent of the non-resident foreign freshmen planned to hold outside jobs during their college years . . ." (page 55). By 1982, there had been a steep decrease, as only 2.3 percent expressed such an intention. Perhaps the foreign students were simply learning how to respond to forms which appear "governmentally" originated. Increased enforcement efforts by the Immigration and Naturalization Service were probably responsible for the decline in response.

The authors believe that because foreign students attend full time and are more equally distributed between private and public institutions than domestic students, they now "resemble traditional American students more than many Americans do" (page 89). The authors are correct. They might add that today's foreign student more resembles the traditional American college student of the past. With broad access to quality public education, more and more domestic students from diverse age groups are working full or part time and are even raising a family while attending college.

I disagree with the authors that, "The choice of engineering by foreign students seems to be a costly one for U.S. education" (page 132). At the graduate level in particular, many of the key engineering and scientific programs are bolstered by foreign students who serve as graduate and research assistants. The presence of foreign students who return to their native lands competent in advanced research techniques is essential to the development of their countries—and sometimes to the American firms with plants in those countries.

Certainly, there is also a need to develop domestic American skills at the advanced degree level, but it is not the colleges and universities that prevent this result; rather, it is the appealing salaries of American industry. The continuation of that trend will reduce American competitiveness. But that is not the fault of foreign students, but rather of our own nation for not recognizing that our greatest national treasure is our investment in the basic and applied creativity and research required by an advanced civilization.

After reviewing the data, the authors conclude that "non-resident international students" have "demonstrated consistently higher indicators of quality than did their American counterparts" (page 107). The presence of foreign students of intellectual talent is not simply a benefit for them and, hopefully, their nations, but also for students from our own still largely parochial shores. To say that the United States lives in an interdependent world is not to be starry-eyed or a "one worlder." It is simply to be a realist who wishes to protect the long-run American interest. Our students need an international environment. They lack a global education. The presence of foreign students on our campuses provides a living presence of those different cultural values which we will have to understand if our people—and thus our nation—are to be competitive beyond our shores.

Solmon and Young are making an important contribution to our knowledge about foreign students. Although various readers may well interpret the data differently, it is important that all those who worry about foreign student issues be aware of the facts and analyses in this report.

Stephen Horn, President
California State University,
Long Beach

Introduction

Over the last two decades there have been many studies examining issues related to the presence of international students in American institutions of higher education. Each has with varying degrees of success improved the information we have concerning the impacts these students have on the economy, on the demand for higher education, and on campus life in general. The present study will further inform our view of international students in America by looking at the general characteristics, goals, and attitudes of foreign students in relation to those of their American counterparts. Additionally, regional enrollments, degrees conferred, and the type of institution selected by each group are examined comparatively, using data bases that regularly track the characteristics and trends of domestic students. The addition of this information to existing knowledge should enable American institutions of higher education better to anticipate and meet the needs of international students who come to the United States for post-secondary education.

To this end, our study consists of five chapters:

CHAPTER I: The general characteristics of foreign students, both resident and non-resident, will be compared with the national norms, using data from the annual CIRP survey which sampled the estimated 1,557,512 students in 1972 and the 1,740,997 students in 1982 who were first-time, full-time freshmen in American colleges and universities.[1] Within this chapter we will examine the gender, age, and marital status (Section A), family background (Section B), and personal goals (Section C) reported by international students and U.S. students.

CHAPTER II: The second chapter uses the CIRP data to look at the reasons of foreign and domestic students for selecting their post-secondary institution. The choices made by students are categorized in terms of quality issues, reputation issues, and financial issues.

CHAPTER III: The third segment of this study reports the enrollments of foreign and domestic students as found in the HEGIS data. The enrollments have been disaggregated by level of study (undergraduates—Section A, and graduate students—Section B), and by full-time and part-time enrollments (Section C). A general comparison of the college-aged population by region with actual enrollment figures is discussed in Section D. The final section of Chapter III compares the opening Fall enrollments with full-time

[1] These figures were taken from *The American Freshman* which presents the national norms for Fall, 1972, and Fall, 1982. These estimates of the number of first-time, full-time freshmen are derived from a weighting procedure which adjusts for disproportionate sampling of institutions.

equivalent figures, which provide a cost-sensitive look at enrollments broken down for public and private schools and universities, four-year colleges, and two-year colleges.

CHAPTER IV: The fourth portion of this study compares the data concerning the quality of students, as indicated in the CIRP data (Section A), with the degrees awarded by institutions of varying selectivity provided by the HEGIS data (Section B). Again, the aim is to make these comparisons for international and American students.

CHAPTER V: The final chapter of this study relates the data on the career and job aspirations of foreign and domestic students (Section A) to the students' probable major and degree aspirations (Section B), and the record of actual degrees awarded to domestic and international students (Section C). The information on degrees awarded is presented by level, that is, bachelor's, master's, or doctorate, and by discipline.

The information reported in this study was obtained from two sources: the Higher Education General Information Survey (HEGIS) and the annual freshman survey of the Cooperative Institutional Research Program (CIRP). As will be described below, the HEGIS and the CIRP provide interesting insights on the nature of higher education in America. Before beginning the descriptive portion of this study, it is important to review the structure of these surveys and the manner in which each collects data.

The Higher Education General Information Survey (HEGIS) is collected by the Center for Statistics (formerly the National Center for Education Statistics—NCES). This survey is an integral part of the comprehensive nationwide system of basic data on higher education. Using this instrument, all post-secondary educational institutions report basic data which are then widely used by administrators, planners, researchers, and guidance counselors. The form for 1981–82 is identical to that used for each year from 1975–76, except for the method of collection for racial/ethnic data. The data on foreign students used in this study were generated by the separate counting of students who are not citizens or nationals of the United States and who are in this country on a temporary basis and do not have the right to remain indefinitely. Resident aliens who are not citizens or nationals of the United States, but have been lawfully admitted for permanent residence, are reported in the same category as American citizens.

The HEGIS survey is completed by institutional officials, rather than by individual students. The information on degrees conferred is collected by discipline and level, including degrees and awards based on less than four years of work beyond high school, such as the associate arts degree and various occupational certificates. The reports are broken down by gender, ethnicity/race, and citizenship of recipients. Also, data are reported regionally and by type of institutional control (public or private).

This study uses the HEGIS data files for the years 1976 and 1982 to obtain profiles of foreign and domestic students in U.S. institutions of higher education. The 1976 HEGIS study reported 11,121,426 higher education students, 219,750 of whom were foreign. The 1982 HEGIS study reported 12,588,520 students, of whom 332,150 were foreign. Thus, the percentage of foreign students in American institutions of higher education was 2.0 per cent in 1976 and 2.6 per cent in 1982.

In addition to the total head count of all post-secondary foreign and domestic students, a separate count of students was used in the review of graduate and undergraduates, and full- and part-time students.[2] According to this count, in 1976, there were 8,539,603 undergraduate students, 129,936 of whom were foreign, and 1,089,290 graduate students, 66,308 of whom were foreign. In 1982, there were 9,769,921 undergraduate students, 201,723 of whom were international, and 1,096,364 graduate students, 99,204 of whom were foreign. Similarities and differences in these two populations can be illustrated. By comparing the degree of change over this six year period, trends can be detected along a number of dimensions.

Another important source of information about the characteristics and attitudes of students is found in the data collected as a part of the annual freshman survey of the Cooperative Institutional Research Program (CIRP), an ongoing longitudinal study of students in the American higher education system. This study is sponsored by the Graduate School of Education at the University of California, Los Angeles and the American Council on Education. The population for each annual survey is all first-time, full-time entering freshmen at all accredited and nonaccredited institutions listed by the Department of Education's *Education Directory*. The survey instrument, the Student Information Form (SIF), is usually administered to entering freshmen throughout the United States. The data also were collected at times by administering the SIF during registration, freshman orientation, or during the first few weeks of classes. The data obtained from students were differentially weighted because of disproportionate sampling of institutions within each stratification cell and because not all students at each college completed the SIF. The weighting procedures generated summary data representative of all first-time, full-time students entering institutions of higher education in the respective years included in the present study (i.e., 1972 and 1982).

Using the questions regarding citizenship and home address, the responses of resident and non-resident aliens have been separated. The resident aliens are those freshmen who indicated foreign citizenship, but had a home address in the United States. Non-resident aliens are those students with foreign citizenship and a foreign home address. The characteristics and attitudes of these foreign student groups can then be compared with the national norms to determine similarities and differences. Over 97 per cent of the subjects surveyed to obtain the national norm figures are domestic students, with the remainder being the foreign population. The overwhelming proportion of American students in the national norms makes these figures a good proxy for characteristics and attitudes of domestic students. However, the norms data are slightly closer to data on foreign students than data on American students alone would be.

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[2] The discrepancy between undergraduate and graduate totals and the headcount numbers from the opening Fall enrollments is the result of different weighting formulas and the fact that the count of all post-secondary students includes unclassified students, those in occupational programs, and those seeking first-professional degrees. As with any weighted data, the numbers are an estimate of the true population, rather than being an actual census count. Nevertheless, the total post-secondary figures are similar to the foreign student census conducted by the Institute of International Education and presented in *Open Doors*.

The CIRP data for 1972 and 1982 will be used to discern trends over time as well as to obtain an up-to-date picture of differences between foreign and domestic freshmen. The 1972 survey sampled some 188,900 freshmen, 2.2 per cent of whom were foreigners as measured by citizenship. The 1982 survey questioned 189,000 college freshmen, 2.3 per cent of whom were not U.S. citizens. Here, one notes a difference in the percentage of foreign students reported in the 1982 HEGIS work and that reported in the CIRP for that year. We would expect the HEGIS percentage foreign figures to be higher due to the inclusion of graduate students, a greater proportion of whom are foreign. However, this factor is counterbalanced by the fact that CIRP includes both resident and non-resident aliens as "foreign", whereas the HEGIS data includes resident aliens with domestic students. If the CIRP figures were adjusted to include only non-resident foreign-born students, we would expect the percentage foreign reported by HEGIS to be even greater in 1982 than the percentage reported by CIRP.

The CIRP data rely on self-reporting by students of the factors presented in this study. To the extent that students may overestimate their own ability or prospects—and there is evidence that this is so—we may be overestimating some factors such as the indices of student quality (Solmon, Ochsner and Hurwicz, 1979). Nevertheless, the CIRP survey provides national normative data on characteristics of students entering college as first-time, full-time freshmen.

I.

General Characteristics

Compared to U.S. students and resident alien students, non-resident foreign students include relatively high proportions of males and older students and a relatively low proportion of students who expect to marry while obtaining undergraduate degrees. They come from relatively affluent and well-educated families. Both in 1972 and 1982, foreign non-resident students more frequently had altruistic goals and left-wing/liberal political views than other groups; over time, they became less altruistic and their political views more polarized.

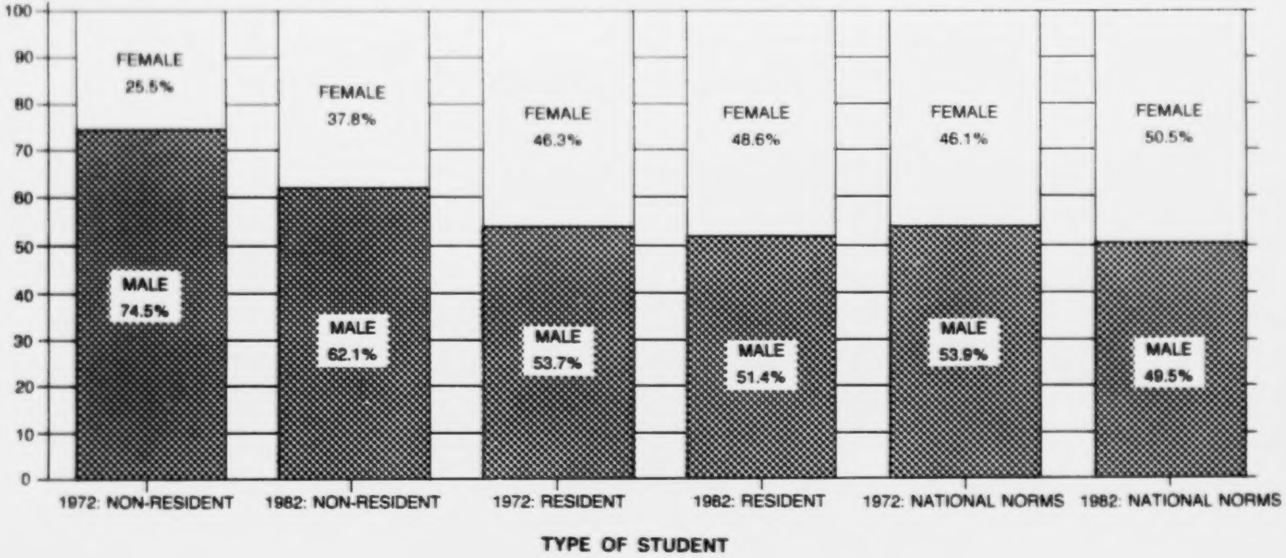
As stated above, the CIRP data allow us to examine some of the characteristics of foreign students who come to American institutions of higher education. These data permit a comparison of resident and non-resident foreign students with each other and with the profile provided by the national norms.

Section A: Gender, Age, Marital Status

This section compares some of the general characteristics of foreign students with the national norms. Specifically, this section reviews similarities and differences in sex, age, and marital status. In 1982, the college freshman class was composed of 49.5 per cent men and 50.5 per cent women (See Table 1). The slight increase in female students was a change from the 1972 figures, which showed 53.9 per cent male and 46.1 per cent female. There was a drop of 8.2 per cent in the share of male students and an increase of 9.5 per cent in the share of female students between these two years. In 1982, 51.4 per cent of the resident alien freshmen was male and the other 48.6 per cent was female. In 1972, the survey indicated that 53.7 per cent of the resident aliens were men and only 46.3 per cent of these freshmen were women. The number of resident alien males dropped by 4.3 per cent and the number of females increased by five per cent. While this male to female ratio was almost identical to the national norms in 1972, the proportion of resident foreign females did not grow quite as much as it did in the general population of college freshmen.

For non-resident foreign students, the picture is quite different from both the resident aliens and the national norms. In 1972, male students in the non-resident alien group outnumbered female students by a three to one ratio. By 1982, the share of women who came to the United States for undergraduate study increased by 48.2 per cent. This increase was accom-

TABLE 1 Entering Freshmen by Sex



panied by a corresponding 16.6 per cent decrease in the share of male foreign students coming to this country for baccalaureate work. In 1982, the population of non-resident foreign freshmen contained 62.1 per cent men and 37.8 per cent women. This ratio of roughly two to one sharply contrasts with the almost one to one ratio among resident aliens as well as the national norms. These differences are likely to reflect the traditional greater investment in the education of men than women in less-developed countries.

Other differences appear when the age of entering freshmen from foreign countries is compared with national norm figures. Generally, the figures in Table 2 show that foreign freshmen are older than the national norms for entering college students. In 1982, all but about four per cent of all first-time students were between the ages of seventeen and nineteen. (The norms exclude both returning and part-time freshmen who would be older.) For the resident aliens some 8.7 per cent were twenty years old or more. For the non-resident foreigners, a considerable 18.7 per cent of the entering college freshmen were age twenty or older. For the group of resident aliens, the proportion of students who were 20 or more years old had decreased from nearly one-quarter of that population in 1972, to 8.7 per cent in 1982. For non-resident foreign students, the percentage of students who were over 19 years old had decreased also, from 35.6 per cent in 1972 to only 18.7 per cent in 1982. Within the entire group of foreign students, the non-resident aliens show a greater proportion of older students than the resident

TABLE 2 Age for Entering Freshmen: 1972 and 1982

	1972		
Student's Age	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
16 or less	.2%	.7%	.1%
17 to 19	64.2%	74.6%	93.9%
20 or more	35.6%	24.7%	6.0%

	1982		
Student's Age	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
16 or less	.7%	.7%	.1%
17 to 19	80.6%	90.8%	95.6%
20 or more	18.7%	8.7%	4.2%

	Per Cent Change		
Student's Age	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
16 or less	250.0%	0.0%	0.0%
17 to 19	25.5%	21.7%	1.8%
20 or more	−47.5%	−64.8%	−30.0%

aliens, who more closely resemble the national norms figures. The share of older foreign students is dropping; there was a decrease of 64.8 per cent in the share of resident aliens who were 20 years or older; and there was a decrease of 47.5 per cent in the category of older non-resident foreign freshmen. Nevertheless, colleges and universities must consider different needs of many (older) foreign students in regard to counseling and other support services, extracurricular activities, day care for children, and so on. In addition to problems that arise because these students are foreign, the fact that they are older further complicates their ability to assimilate into the typical college classroom.

This trend can also be seen in the percentages of students who had just finished high school, compared with those who were graduated in an earlier year (Table 3). The 1972 national norms showed 91.6 per cent of all students had graduated from high school that year. By 1982, 94.0 per cent were last year's high school graduates. For foreign freshmen who reside permanently in the United States, there was a considerable increase in the number who were last year's high school graduates, from 77.3 per cent in 1972 to 92.0 per cent by 1982. Thus, the figures for this group have become quite similar to the national norms. However, the percentages for the non-resident alien groups have changed very little over the same ten year period. In 1972, only 67.5 per cent of the non-resident aliens had just graduated from high school. By 1982, this figure had risen only 3.9 per cent, with 70.1 per cent of these non-residents being high school graduates in the previous year. Any student who has been away from school for a number of years will have more difficulty adjusting to academic life than those moving directly

TABLE 3 When Entering Freshman Graduated from High School: 1972 and 1982

	1972		
Graduated High School	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
In 1972	67.5%	77.3%	91.6%
Not in 1972	32.5%	22.7%	8.4%

	1982		
Graduated High School	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
In 1982	70.1%	92.0%	94.0%
Not in 1982	29.9%	8.0%	6.0%

	Per Cent Change		
Graduated High School	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Current Year	3.9%	19.0%	2.6%
Not current year	−8.0%	−64.8%	−28.6%

from one level to another. It is also likely that the former will be disadvantaged when taking standardized admissions tests. Again, these problems are likely to be compounded for foreign students.

In light of the age data, we can conclude that while the national norms indicate that almost all first-time, full-time students enter college directly from high school, a good number of foreign students have taken time for other activities between high school and college. Foreign residents require time to select their American college, apply, and gain acceptance. They may also require time to accumulate sufficient funds to pay for their college work in the United States. As some two-thirds of the foreign student population is sponsored by their families, this seems like a reasonable explanation (*Open Doors*). Finally, this spacing between school experiences is more common among non-resident aliens than among resident foreigners, who more closely resemble the national norms.

With regard to marital status, almost all entering freshmen are similar, with only a very small proportion of each group being married. The percentage of married students declined both in the national norms and among foreign students. Table 4 shows that in 1972, 2.3 per cent of all college freshmen were married; by 1982, only 0.9 per cent were married. Among resident aliens, 5.2 per cent were married in 1972, and this proportion declined to only 1.3 per cent in 1982. Finally, within the group of non-resident foreign freshmen, the number of married students decreased from 3.6 per cent in 1972 to only 0.5 per cent in 1982.

The freshmen were also asked to indicate their family and marriage plans. The importance of raising a family was highly valued by 64.8 per cent of all freshmen in 1972. In this same year, 61.6 per cent of the resident aliens and 59.2 per cent of the non-resident foreign freshmen gave a high priority to this goal. By 1982, the responses of these groups had changed in different degrees. While the proportion of non-resident aliens selecting this goal remained constant, the national norms for this response rose to 67.1 per cent of the total population, and the percentage for the resident aliens rose to 63.7 per cent. In the same period, the proportion of students who thought it likely that they would marry while in college dropped in the national norms and in the foreign student groups (Table 5). In 1972, 7.6 per cent of all freshmen considered it likely that they would marry during their college years. This figure can be compared with the lower percentages for resident aliens (5.8 per cent) and the non-resident aliens (4.4 per cent). By 1982, these percentages had dropped in each group, reflecting a general trend toward later marriages. The national norms fell to 4.8 per cent. The figures for the foreign students dropped to 3.1 per cent of the resident aliens and only 2.1 per cent of the non-resident foreigners.

Section B: Family Background

The CIRP data allow us to examine the similarities and differences between foreign freshmen and the total freshmen population in terms of the educational background of their parents, the fathers' occupation, and the family income. Table 6 presents the highest level of educational attainment

TABLE 4 Marital Status and Interest in Raising a Family for Entering Freshmen

1972			
Marital Status	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Currently married	3.6%	5.2%	2.3%
Not currently married	96.4%	94.6%	97.7%

1982			
Marital Status	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Currently married	0.5%	1.3%	0.9%
Not currently married	99.5%	98.7%	99.1%

Per Cent Change From 1972–1982			
Marital Status	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Currently married	−86.1%	−75.0%	−60.9%
Not currently married	3.2%	−4.3%	−1.4%

Considered Very Important or Essential to Raise a Family	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
1972	59.2%	61.6%	64.8%
1982	59.1%	63.7%	67.1%
Per Cent Change	−0.2%	3.4%	3.5%

for the fathers of entering freshmen. The difference in the figures for 1972 and 1982 shows a general increase in the fathers' educational level for foreign students and for the total population. There was an overall decline in the share whose fathers had only attended grammar school or less, though the proportions for the foreign student groups were over twice as high as for the national norms. In 1972, 9.2 per cent of the college freshmen reported their fathers' education at the grade school level. By 1982, this percentage had declined to 4.5 per cent. For resident aliens, the figures were 23.6 per cent in 1972 and 11.4 per cent in 1982. Despite this great decline, the resident alien group has consistently had the largest percentage in this category. Among the non-resident foreign freshmen, 17.1 per cent reported their fathers' education at the lowest level in 1972. This proportion decreased to 10.7 per cent in 1982.

The number of students whose fathers had completed high school but had no further schooling rose in each group, though the increases were modest in each instance. The national norms showed the highest percentages, with 30.3 per cent in 1972 and 34.2 per cent in 1982. The resident aliens had the next highest percentages, with 20.7 per cent in 1972 and 21.5 per cent in 1982. Non-resident aliens with fathers who had completed high school comprised 17.5 per cent of the group in 1972 and 19.6 per cent in 1982.

However, when one looks at the proportions of those whose fathers had an educational background of a high school diploma or less, a somewhat different picture emerges. By combining the data in this manner, it becomes apparent that the number of fathers with lower levels of education has declined since 1972. In 1972, the national norms indicated that 54.6 per cent of the entering freshmen had fathers with no college experience. At 64.0 per cent, this percentage was higher for the resident alien group and roughly the same as the national norms for the non-resident foreign students at 55.8 per cent. By 1982, the national norms had dropped to 48.7 per cent. For this later year, the proportion for the resident aliens had decreased to 43.6 per cent and the percentage for the non-resident aliens had fallen to only 40.3 per cent of that population.

The proportion of freshmen whose fathers had college experience increased between 1972 and 1982, in the national norms and for both foreign

TABLE 5 Marital Plans: A Comparison of Foreign Students with the National Norms

	1972		
Chances Considered Very Good	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Get married in college	4.4%	5.8%	7.6%
Get married one year after college	12.1%	12.4%	16.9%

	1982		
Chances Considered Very Good	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Get married in college	2.1%	3.1%	4.8%
Get married one year after college	8.4%	11.8%	16.6%

	Per Cent Change From 1972–1982		
Chances Considered Very Good	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Get married in college	−52.3%	−46.6%	−36.8%
Get married one year after college	−30.6%	−4.8%	−1.8%

student groups. In 1972, 45.4 per cent of the total freshman population had fathers who had attended college or received a college degree. By 1982, a majority (51.2 per cent) had fathers with at least some college experience in their educational backgrounds. Among resident aliens in 1972, only 35.9 per cent of the fathers of freshmen had any college experience; however, by 1982, a majority of this group (56.4 per cent) came from families in which the father had at least attended college or had received a college degree. For the non-resident aliens, this same growth pattern was seen. In 1972, 44.2 per cent of the fathers of non-resident foreign freshmen had some college experience; by 1982, this proportion had risen to 60.0 per cent, the highest percentage for any of the groups considered here.

Finally, these data provide some very interesting information about the proportion of freshmen whose fathers hold graduate degrees. In both 1972 and 1982, the percentage of foreign freshmen whose fathers had graduate degrees was greater than the national norms. In 1972, the national norms figure was 10.7 per cent. In this year, 10.8 per cent of the fathers of resident aliens held higher degrees, while 16.5 per cent of the non-resident foreign freshmen had fathers with such degrees. By 1982, the difference between the foreign freshmen groups and the national norms was even more pronounced. For the later year, the national norms were 15.4 per cent. The proportion for non-resident aliens with highly-educated fathers was exactly double at 30.8 per cent, and the figure for resident aliens was close behind at 25.9 per cent.

It appears that American colleges are increasingly educating the children of the upper classes of other nations. Father's education is an important indicator of socioeconomic status, and clearly, a greater proportion of foreign than of domestic students have highly educated fathers. If our goal in admitting foreign students is to help reduce social and economic disparities abroad, it appears that we may be training the wrong foreign students.This is inevitable when we need foreign students who can pay their own way. As we continue our description, we will see that at the undergraduate level, many foreign students attend relatively low selectivity, private colleges where costs are a major consideration. Since there are few fellowships for foreign students at the undergraduate level, we would expect that the ability to pay (as reflected by SES) is a prime determinant of who comes. We are not admitting many bright but poor foreign students who require subsidization. If a goal of educating foreign students is to reduce poverty and social inequality in other nations, it seems clear that greater effort is required to attract bright students from the lower strata of poorer nations. By mainly admitting foreigners who can pay their way, we are denying access to those who might benefit most from college study in the U.S. More scholarships should be made available by the institutions themselves, by the U.S. federal government, and by international agencies.

The figures showing the educational level of the mothers of freshmen students appear in Table 7. Not surprisingly, the mothers' educational level is lower than the fathers' in all cases. However, here again we see a decline for all groups in the proportions of students whose mothers are at the lowest levels of educational attainment. Additionally, there are some substantial differences between the national norms and the percentages reported by the foreign freshmen. In 1972, 63.0 per cent of all college freshmen reported that their mothers had a high school education or less. That same year, 77.5 per cent of the resident alien freshmen indicated this level of education for their mothers. For the non-resident foreign students, 72.9 per cent of the mothers had a high school diploma or less.

The share of freshmen whose mothers had lower levels of educational attainment decreased in the ten-year period examined here. For all college freshmen this proportion decreased to 59.5 per cent in 1982. The share of foreign freshmen whose mothers were high school graduates or less also decreased, to 58.5 per cent for resident aliens and to 61.0 per cent for the non-resident foreign students. Thus, in spite of a decline in the proportions of freshmen whose mothers had a high school education or below, a sizeable majority of the mothers still fell in this category in 1982.

The percentage of freshmen reporting that their mothers had college experience increased for all groups. In 1972, 36.9 per cent of the total freshmen population came from families in which the mother had some college experience or held a college degree. In this same year, only 22.6 per cent of the mothers of resident alien freshmen had had some type of college experience, and for non-resident foreign freshmen, the percentage of mothers with college work was 27.1 per cent. Since mother's education is a good proxy for the amount of human capital formed in the home, it seems clear that, at least in 1972, foreign students were entering U.S. colleges and universities with less basic human capital than were their domestic peers. This may well be one more factor making adjustments to the demands of college more difficult for foreigners.

By 1982, there was an increase in the proportion of freshmen whose mothers had completed some level of college work or had received a college degree. In 1982, 39.0 per cent of the non-resident foreign students reported that their mothers had completed some level of college work. The resident alien freshmen group had a 41.4 per cent incidence of mothers with college experience. The national norms for this year indicated that 40.5 per cent of all freshmen came from families in which the mother had completed some college work or had earned a college degree. Thus, the foreign freshmen closely resemble the national norms with regard to this level of mother's educational attainment.

Finally, we turn to the proportion of college freshmen whose mothers had graduate degrees. The national norms indicate four per cent in 1972 and 6.8 per cent in 1982. The percentage of resident aliens whose mothers held graduate degrees was slightly greater than the norms, at 4.3 per cent in 1972 and 10.6 per cent in 1982. For the group of non-resident foreign freshmen, the percentage who had mothers with advanced degrees was below the national norms at 2.3 per cent in 1972, but by 1982 it had risen to 10.6 per cent. It is interesting to note that by 1982, the percentage of foreign students whose mothers had graduate degrees was considerably greater than the national norms.

The CIRP data also provide information regarding the fathers' occupation for the entering freshmen (Table 8). The fathers' occupation most commonly

TABLE 6 Father's Education for Entering Freshmen

	1972			1982			Per Cent Change		
Father's Education	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Grammar or less	17.1%	23.6%	9.2%	10.7%	11.4%	4.5%	−37.4%	−51.7%	−51.1%
Some high school	21.2%	19.7%	15.1%	10.0%	10.7%	10.0%	−52.8%	−45.7%	−33.8%
High school graduate*	17.5%	20.7%	30.3%	19.6%	21.5%	34.2%	12.0%	3.9%	12.9%
Some college	8.6%	9.8%	16.2%	6.6%	8.5%	13.4%	−23.3%	−13.3%	−17.3%
College graduate	16.8%	13.8%	16.1%	20.1%	18.5%	20.1%	19.6%	34.1%	24.8%
Some graduate school	2.3%	1.5%	2.4%	2.5%	3.5%	2.3%	8.7%	133.3%	−4.2%
Graduate degree	16.5%	10.8%	10.7%	30.8%	25.9%	15.4%	86.7%	139.8%	43.9%

* Those indicating "postsecondary" in 1982 merged with "high school grad."

TABLE 7 Mother's Education for Entering Freshmen

	1972			1982			Per Cent Change		
Mother's Education	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Grammar or less	20.7%	27.6%	6.0%	13.6%	13.1%	3.0%	−34.3%	−52.5%	−50.0%
Some high school	20.9%	23.8%	13.2%	11.9%	12.7%	8.0%	−43.1%	−46.6%	−39.4%
High school graduate*	31.3%	26.1%	43.8%	35.5%	32.7%	48.5%	13.4%	25.3%	10.7%
Some college	8.9%	8.8%	17.5%	7.6%	10.6%	14.6%	−14.6%	20.5%	−16.6%
College graduate	13.0%	8.1%	13.2%	16.8%	17.7%	17.0%	29.2%	118.5%	28.8%
Some graduate school	2.9%	1.4%	2.2%	4.0%	2.5%	2.1%	37.9%	78.6%	−4.5%
Graduate degree	2.3%	4.3%	4.0%	10.6%	10.6%	6.8%	360.9%	146.5%	70.0%

* Those indicating "postsecondary" in 1982 merged with "high school grad."

TABLE 8 Father's Occupation for Entering Freshmen

Father's Occupation	1972						1982						Per Cent Change		
	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	Non-Res. Foreign (%)	Resident Foreign (%)	National Norms (%)
Business	1	41.7	2	22.2	1	30.0	1	47.6	1	32.0	1	29.6	14.1	44.1	−1.3
Other	2	20.9	1	23.4	2	18.5	2	16.2	2	19.0	2	21.4	−22.5	−18.8	15.7
Engineer	3	7.1	5	7.1	4	7.7	3	8.5	3	10.2	4	9.0	19.7	43.7	16.9
Farmer/forester	4	6.9	8	3.5	6	5.9	5	4.0	9	2.2	6	3.9	−42.0	−37.1	−33.9
Skilled worker	5	4.2	4	10.4	3	12.4	7	2.2	5	5.9	3	11.1	47.6	−43.3	−10.5
Semi-skilled worker	6	3.3	3	11.5	5	7.0	12	1.2	6	5.1	5	5.0	−63.6	−55.7	−28.6
Unemployed	6	3.3	7	4.0	9	2.0	18	0.2	8	2.6	10	2.1	−93.9	−35.0	5.0
Clergyman	8	2.4	17	0.5	14	0.9	17	0.5	15	1.1	14	1.0	−72.9	120.0	11.1
Health professional	9	1.5	13	0.9	13	1.2	9	1.7	12	0.9	13	1.4	13.3	0.0	16.7
Military	6	0.7	15	1.9	11	1.8	14	1.9	11	1.0	11	1.8	0.0	42.9	0.0
Lawyer	10	1.3	14	0.8	12	1.3	6	2.8	13	1.5	12	1.6	115.4	87.5	23.1
Doctor	10	1.3	9	3.3	9	2.0	4	6.2	4	6.6	9	2.2	376.9	100.0	10.0
Artist	10	1.3	12	1.0	16	0.8	10	1.6	16	1.0	16	0.9	23.1	0.0	12.5
Secondary education	14	1.2	14	0.8	8	2.3	7	2.2	9	2.2	7	3.5	83.3	175.0	52.2
Primary education	14	1.2	18	0.3	18	0.3	16	0.9	18	0.6	17	0.6	−25.0	100.0	100.0
Research scientist	16	0.6	14	0.8	17	0.6	14	1.2	14	1.0	17	0.6	66.7	50.0	0.0
Unskilled worker	16	0.6	6	6.1	7	4.3	11	1.3	7	4.4	8	3.3	116.7	−27.9	−23.3
College teacher	18	0.5	11	1.5	14	0.9	12	1.2	12	1.8	14	1.0	140.0	20.0	11.1

reported by freshmen was business. In 1972 and 1982, this same finding was true for foreign students and the national norms. The only exception was that in 1972, resident aliens reported business second to "other" occupations by a narrow margin. The second highest percentage in the national norms and for both groups of foreign freshmen was in the category of "other." Though we do not have information about the specific occupations in this category, we do know what is NOT included: any of the listed occupational categories. These two classifications, "businessman" and "other," were selected by 48.5 per cent of the total sample in 1972 and by 51.0 per cent of the respondents in 1982. Among the resident alien freshmen, these categories accounted for 45.6 per cent of the total in 1972, and for 51.0 per cent of that population in 1982. Among the non-resident foreign freshmen, these categories were selected by 62.6 per cent in 1972 and 63.8 per cent in 1982. In both years, a very large proportion of the non-resident foreign freshmen (41.7 per cent in 1972 and 47.6 per cent in 1982) reported their fathers' occupation as business.

In 1972, the fathers' occupations reported next most frequently by foreign students were similar to the national norms, though the rankings were somewhat different. The third highest percentage of fathers' occupations was skilled workers in the national norms at 12.4 per cent, semi-skilled workers for the resident aliens at 11.5 per cent, and engineers for the non-resident foreign freshmen at 7.1 per cent. In fourth place were engineers (7.7 per cent) in the national norms, skilled workers (10.4 per cent) among the resident aliens, and farmer / forester (6.9 per cent) for non-resident aliens. The number five slot was farmer / forester in the national norms (5.9 per cent), engineer for resident aliens (7.1 per cent), and skilled workers for the non-resident foreign freshmen (4.2 per cent).

The big change in 1982 was that the proportion of foreign students, both resident and non-resident, who were children of doctors increased and appeared in the top five occupations (Table 8). The percentage of resident aliens who were children of doctors doubled in this ten year period, from 3.3 per cent in 1972, to 6.6 per cent in 1982. An even more dramatic increase was seen among the non-resident alien students. For this group the percentage of freshmen who were children of doctors increased from 1.3 per cent in 1972, to 6.2 per cent in 1982. At the same time, it is interesting to note that only a small proportion of all entering freshmen were children of doctors (2.0 per cent in 1972, and 2.2 per cent in 1982). This is consistent with the prior discussion indicating that an increasing proportion of foreign students come from high SES backgrounds.

The final piece of information regarding family background can be gleaned from the figures on parental income (Table 9). While the family incomes of foreign freshmen can be compared with the national norms for a given year, the effect of inflation over the ten year period between 1972 and 1982 makes any discussion of trends impossible. As an example, $10,000 earned in 1972 would be equivalent to $22,900 earned in 1982. To arrive at these figures we have used the Consumer Price Index to obtain a multiplier by which 1972 dollars can be made equivalent to 1982 dollars and vice versa.

Looking at the national norms for 1972, as they appear in Table 9, we

TABLE 9 Parental Income of Entering Freshmen

	1972			
Parental Income 1972 Dollars	**Non-Res. Foreign**	**Resident Foreign**	**National Norms**	**1972 Dollars Expressed As 1982 Dollars**
Less than $10,000	55.2%	61.0%	32.7%	Less than $22,900
$10,000–$14,999	19.2%	23.0%	30.3%	$22,901–$34,348
$15,000–$19,999	6.9%	6.6%	14.8%	$34,350–$45,798
$20,000–$29,999	7.7%	6.1%	13.2%	$45,799–$68,698
$30,000–$39,999	3.2%	1.9%	4.7%	$68,699–$91,598
$40,000–$49,999	1.6%	.8%	1.7%	$91,599–$114,498
$50,000 or more	6.3%	.9%	2.7%	$114,499 or more

	1982			
Parental Income 1982 Dollars	**Non-Res. Foreign**	**Resident Foreign**	**National Norms**	**1982 Dollars Expressed As 1972 Dollars**
Less than $10,000	14.7%	17.1%	10.4%	Less than $4,366
$10,000–$14,999	10.6%	12.1%	10.2%	$4,367–$6,549
$15,000–$19,999	5.2%	8.7%	9.1%	$6,550–$8,733
$20,000–$29,999	15.1%	18.6%	24.7%	$8,734–$13,094
$30,000–$39,999	14.3%	14.1%	20.5%	$13,100–$17,466
$40,000–$49,999	8.6%	9.7%	10.6%	$17,467–$21,833
$50,000 or more	31.4%	19.9%	14.6%	$21,834 or more

see that the greatest percentage of freshmen, 32.7 per cent, came from families with incomes of less than $10,000 per year (or less than $22,900 in 1982 dollars). Thirty and three-tenths per cent of this population reported an annual parental income of between $10,000 and $14,999 ($22,900–$34,348 in 1982). The $15,000 to $19,999 bracket ($34,350–$45,798 in 1982) described 14.8 per cent of the family incomes of incoming freshmen. Thirteen and two-tenths per cent of the 1972 freshmen came from families which earned between $20,000 and $29,999 per year ($45,799–$68,698 in 1982) Four and seven-tenths per cent of all freshmen reported parental incomes between $30,000 and $39,999 a year ($68,699–$91,598 in 1982). One and seven-tenths percent came from families with annual incomes between $40,000 and $49,999 ($91,599–$114,498 in 1982), and only 2.7 per cent of all freshmen reported a parental income of $50,000 or more ($114,499 or more in 1982).

The distribution of family incomes for non-resident foreign students and for resident aliens in 1972 is somewhat different from the national norms. Whereas 63.0 per cent of the parental incomes from the national norms were less than $15,000 per year (less than $34,350 in 1982), 84.0 per cent of the resident aliens' families were in this category, and 74.4 per cent of the non-resident foreign families earned less than $15,000 ($34,350 in 1982) annually. Clearly, the resident alien students come from families with lower incomes than either the national norms or the non-resident alien population. At first glance, this seems to conflict with our earlier statements regarding the fact that foreign students in the United States come from high SES backgrounds. However, it is likely that average incomes in third world nations are substantially lower than those in the United States. Thus, foreign students are still likely to come from the high end of their nation's income distribution, despite their relatively low parental incomes compared to U.S. students.

Additionally, it is interesting to note that the percentage of non-resident foreign freshmen in 1972 who came from the wealthiest families, those earning over $50,000 per year (over $114,498 in 1982), is much higher than the national norms or the figures for resident alien students. Six and three-tenths per cent of the non-resident alien students came from families earning over $50,000 ($114,498 in 1982) annually, as compared with only 2.7 per cent in the national norms and 0.9 per cent of the resident alien group.

The income distributions for the 1982 entering freshmen look much different from the 1972 figures; however, most of the change is due to inflation over the eleven year period. A comparison can be made between the national norms and the two groups of foreign students. First, in the national norms for 1982, 20.6 per cent of all freshmen came from families that earned less than $15,000 a year. This figure can be compared with 29.2 per cent of the resident aliens and 25.3 per cent of the non-resident foreign freshmen. In the range between $20,000 and $29,999, we find 24.7 per cent of all students, compared with 18.6 per cent of the resident aliens and 15.1 per cent of the non-resident aliens. In the next bracket, $30,000 to $39,999 annually, the percentage of foreign freshmen whose families have these earnings is lower than the national norms of 20.5 per cent. For the resident foreign freshmen, there were 14.1 per cent in this group. For non-resident foreigners, the percentage was 14.3 per cent. These figures indicate that there are fewer foreign families in the middle income range who are sending their children to American colleges and universities. Finally, in the category of families earning $40,000 or more, the national norms show 25.2 per cent of all freshmen in this group. This percentage can be compared with the percentages for resident aliens (29.6 per cent) and for non-resident foreign freshmen (40.0 per cent); the greatest discrepancy exists between the norms and the non-resident foreign freshmen. The proportion of foreign freshmen from families in the highest income range is greater than the national norms, confirming other evidence to the effect that many foreigners who come to the United States for undergraduate study are from wealthier families than the average college freshmen.

Section C: Personal Goals

The CIRP questionnaire asks first-time, full-time freshmen to indicate the level of importance they place on various goal statements. Specifically, entering freshmen were queried on which personal goals they considered "very important" or "essential." Additionally, the political views of the entering freshmen were explored.

Table 10 indicates the level of importance attributed to several personal goal statements by foreign students and in the national norms. One set of personal goals exemplifies altruistic values, while the other set typifies values that are more individualistic in nature. The altruistic goals include the desire to influence social values, to help others in difficulty, to become involved in environmental clean up, and to participate in community action programs. Generally, a larger proportion of foreign freshmen valued these altruistic goals than did the total freshmen population as reflected in the national norms. This finding was true in 1972 and in 1982. While the desire to influence social values was selected by between 30 and 35 per cent of all groups in both years, for other areas there were some significant changes in the level of responses over this period of time. The general trend was that in 1982, fewer students considered these altruistic goals to be very important or essential. For example, there was a sizeable drop for all groups in the concern for environmental clean up. In 1972, the national norms showed that 44.6 per cent of all freshmen considered this goal very important or essential. By 1982, this percentage had dropped by 48.7 per cent, to 22.9 per cent of the total freshmen population. Among the foreign students, this goal was selected by 46.0 per cent of the resident aliens in 1972 and only 28.7 per cent of this population in 1982. For the non-resident foreign students, 43.3 per cent valued this goal in 1972 and only 27.5 per cent showed an interest in this problem in 1982. Yet another example of the move away from the more altruistic goals is found in the percentage of incoming students who wanted to participate in community action programs. The national figure for this response declined by 21.6 per cent, from 29.1 per cent in 1972 to 22.8 per cent in 1982. For foreign students, the greatest drop was seen in the responses of the non-resident aliens. In 1972, 36.2 per cent of this population placed a high priority on community action programs; by 1982, only 26.2 per cent of the non-resident group valued this goal.

These findings are not surprising, given what we know about the changed focus of societal values from the War on Poverty spirit of the 60's and early 70's to the greater interest in self-development in the 1980's. The greater interest in societal contributions among foreign students is understandable, since some of them are sent by their home countries or other sponsoring agencies to obtain skills and knowledge in American institutions of higher education in order to apply this added human capital to improving life in their own nations. Alternatively, if these students are from high SES families, personal concerns about career goals may be less pressing, and their decision to study abroad may be related to their commitment to making a social contribution upon their return home.

Two other personal goals relate to more individualistic values. These goals are to be very well off financially and to develop a meaningful philosophy of life. The desire to make a very good living increased for all groups in the years between 1972 and 1982. In 1972, the national norms indicated that 41.2 per cent of all incoming freshmen wanted to become very well off financially. This figure can be compared with a higher percentage of foreign students with this goal. In 1972, 50.4 per cent of the resident aliens and

TABLE 10 Personal Goals: A Comparison of Foreign Students with the National Norms

	1972						1982						Per Cent Change 1972–82		
Personal Goals Considered Very Important or Essential	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	Non-Res. Foreign (%)	Resident Foreign (%)	National Norms (%)
Help others in difficulty	1	75.8	1	71.5	2	66.7	1	66.8	1	69.8	2	61.6	−11.9	−2.4	−7.6
Develop meaningful philosophy	2	70.8	2	65.1	1	70.8	3	58.6	3	56.0	3	46.7	−17.2	−14.0	−34.0%
Be very well off financially	3	55.3	3	50.4	5	41.2	2	64.2	2	68.7	1	68.9	16.1	36.3	67.2
Become involved in environment	4	43.3	4	46.0	4	44.6	6	27.5	7	28.7	6	22.9	−36.5	−37.6	−48.7
Keep up with political affairs	5	41.3	5	36.4	3	48.7	4	50.4	4	44.9	4	38.2	22.0	23.4	−21.6
Participate in community programs	6	36.2	6	31.4	7	29.1	7	26.2	6	29.2	7	22.8	−27.6	−7.0	−21.6
Influence social values	7	35.7	6	31.4	6	30.4	5	35.5	5	34.9	5	31.1	−.6	11.1	2.3
Influence political structure	8	17.6	8	13.2	8	15.7	8	18.7	8	16.9	8	14.8	6.2	28.0	−5.7

55.3 per cent of the non-resident foreign freshmen considered this goal to be very important or even essential. By 1982, the national norms had risen by 67.2 per cent, 68.9 per cent of all incoming freshmen selecting this item. In this later year, the percentage of resident aliens selecting this goal had increased by 36.3 per cent, so that it was valued by 68.7 per cent of this group. Among the non-resident foreigners, being very well off financially was given a high priority by 64.2 per cent of the respondents in 1982, an increase of 16.1 per cent.

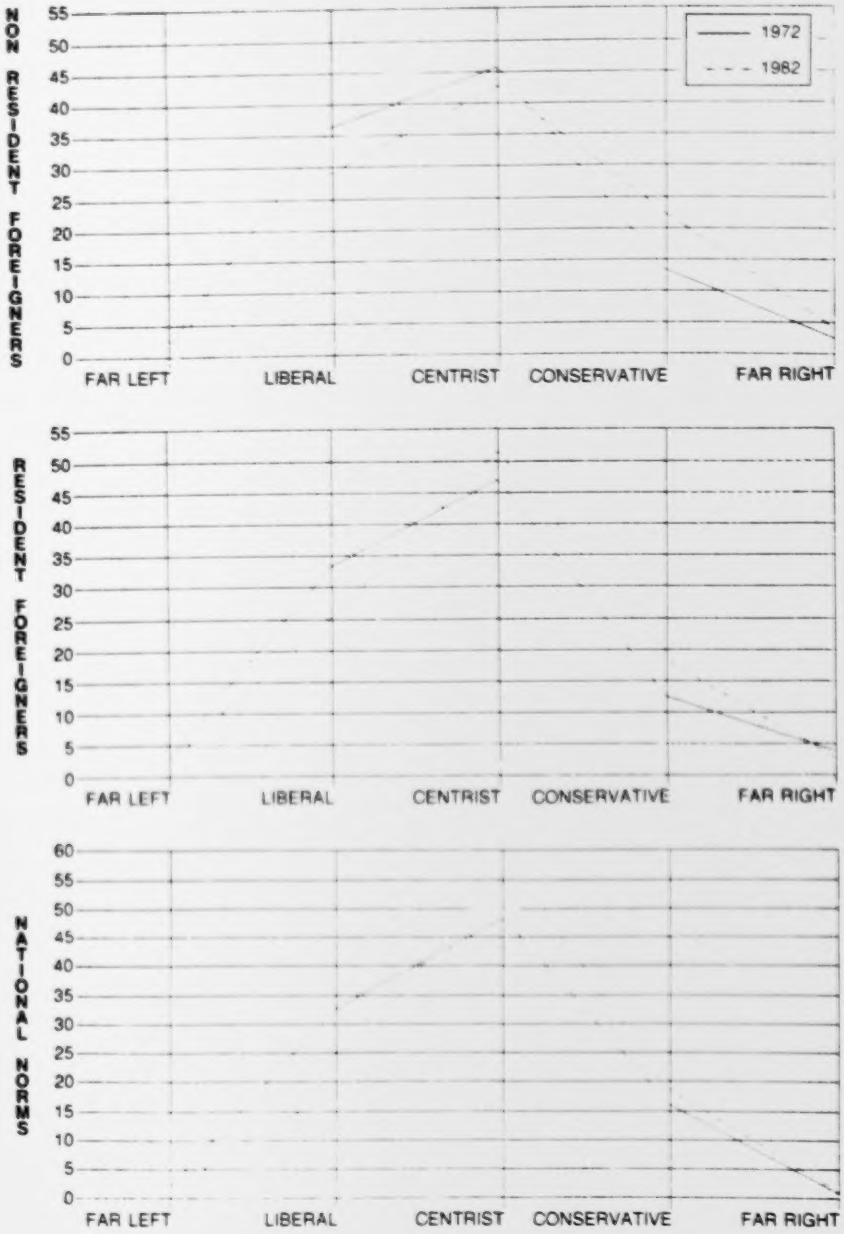
In the late 1960's and early 1970's, students still believed that college attendance guaranteed financial well-being. By 1982, most students realized that college provided no such assurances. Hence, by the later date, financial security became more of a conscious goal of college students. The data should not be interpreted as showing that students today are more desirous of high incomes, only that they are now more concerned about achieving them.

The importance of developing a meaningful philosophy of life dropped significantly for all groups over this ten year period. In 1972, the national norms indicated that 70.8 per cent of all incoming freshmen wanted to develop a meaningful philosophy of life. The percentage of non-resident foreign students selecting this as an important or essential goal was identical to the national norms, while the proportion of resident aliens with this value was slightly less at 65.1 per cent. By 1982, the interest in this goal had fallen by 34.0 per cent in the national norms, by 14.0 per cent among the resident alien freshmen, and by 17.2 per cent among non-resident foreign freshmen. In 1982, only 46.7 per cent of the total freshman population greatly valued this ideal. The percentages among the foreign students were higher, with 56.0 per cent of the resident foreign population and 58.6 per cent of the non-resident alien population placing a high priority on this goal.

Thus, the shift from altruistic values to more individualistic values occurs among foreign students as well as among domestic students. However, it can generally be said that this trend is less pronounced within the foreign population, whether or not they are resident, than among the vast majority of freshmen who are American citizens. These differences may mean that at least foreign students will be somewhat more likely to select more humanistic majors than will domestic students, or at least that they may have slightly less inclination to enter professional fields.

Another area probed by the CIRP questionnaire provides information about the political views of foreign freshmen in comparison with the national norms for first-time, full-time college students. Tables 11a and b show the distribution of political views of resident and non-resident aliens compared with the national norms. For all of these groupings there has been a shift from far left and liberal points-of-view to the conservative end of the political continuum. Looking at the figures for 1982, one can see that the political views in the national norms are normally distributed with almost sixty per cent of the freshmen reporting a middle-of-the-road position. This picture is considerably different from the one in 1972, with more than twice as many students reporting a liberal position as the number who described themselves as conservative.

TABLE 11 Political Positions of Entering Freshmen



This trend is not at all surprising when one compares the external events that occurred around 1972 with the political environment in 1982. The earlier period was characterized by student unrest, related to the Vietnam War among other things. By 1982, a depressed economy and relative oversupply of college graduates had caused a reorientation by students towards paths that would assure them of jobs and successful careers after college. Student idealism had given way to more pragmatic self interest. This is reflected in the responses on political affiliation.

Within the group of freshmen who are resident aliens there has also been a conservative shift; however, the distribution still favors liberal over conservative positions. The extreme positions were less popular and there was an increase from 12.3 per cent conservative in 1972 to 18.0 per cent conservative in 1982. More modest growth is seen in the middle-of-the-road position, which increased from 47.1 per cent in 1972, to 51.4 per cent in 1982. Though there was a decline in the report of liberal views from 33.5 per cent in 1972, a quarter of the resident aliens still reported this position in 1982.

Among non-resident aliens, there were far fewer freshmen reporting a middle-of-the-road position. Instead, this group had a larger proportion of conservative and far right political views than did the resident aliens or the national norms in 1982. For this year, there were 22.0 per cent who were conservative and 4.0 per cent who identified with a far right position. Nevertheless, in 1982, 29.5 per cent of this population reported a liberal position. This percentage is higher than the conservative count within the group of non-resident freshmen. Additionally, the proportion of liberals among the non-resident alien freshmen was larger than either the national norms or the resident alien group.

In another section of the CIRP questionnaire, students are asked to evaluate various goal statements. Among these goals there are two that relate to the students' political views. Table 10 indicates the percentages of students who considered influencing political structure and keeping up with political affairs to be "very important" or "essential" goals. These responses hint at the value foreign students place on political activism, compared with the national norms. Generally, the goal of influencing political structure has declined in importance according to the national norms figures, from 15.7 per cent in 1972, to 14.8 per cent in 1982. However, this goal has increased in importance to the foreign students. For freshmen who are resident aliens, the selection of this goal as essential increased from 13.2 per cent in 1972 to 16.9 per cent in 1982, an increase of 28.0 per cent. For non-resident aliens, there was a slight increase of 6.2 per cent, from 17.6 per cent in 1972 to 18.7 per cent in 1982. It should be noted that this particular goal was selected for its importance much less frequently than other goals examined by the CIRP survey.

The goal of keeping up with political affairs was important to a larger proportion of all students in the 1972 national norms than among foreign students in that year. This goal was identified as important by 48.7 per cent of the total freshman population, whereas only 41.3 per cent of the non-resident aliens and only 36.4 per cent of the resident aliens considered this an important goal in that year. By 1982, the picture had changed. In the later year, the importance of this goal had declined by 21.6 per cent in the national norms, but had increased by over 20 per cent for the foreign freshmen. In 1982, only 38.2 per cent of the total freshman population selected this as an important goal, while 44.9 per cent of the resident aliens and over half of the non-resident aliens selected this item as essential. It is important to note that these shifts have taken place at the same time as the overall reports of political views have moved toward the conservative end of the continuum. However, without connecting the goal reports with the political view reports, we cannot ascertain what factors influenced the increase or decrease in interest in political goals.

II.
Selection of Institutions

Non-resident foreign students, compared to domestic students and resident alien students, place a relatively high premium on academic quality in choosing schools. A relatively high degree of influence on their choices is exerted by family and friends. They are less responsive to differences in tuition costs, but more so to institutional offers of financial assistance.

One of the underlying questions we shall address is the reason for selecting a college; that is, why foreign and domestic students enroll in certain regions, and in public or private colleges. To enlighten this discussion, we can utilize data from the CIRP survey. Here we shall view factors which influence choice of college according to the freshmen surveyed by looking at three categories which are reported to influence the freshmen's choices: quality, recommendations, and financial concerns.

Table 12 indicates the proportions of international and domestic students who cited as "very important" certain reasons for choosing their particular institution. The first category of reasons relates to quality issues: "good academic reputation", "offered special programs", and "not accepted anywhere else." The first two items suggest positive institutional qualities while the last could imply a lack of quality on the part of the student and the institution. (To be sure, a student who is well organized and interested in a particular program might apply only to the one institution offering it, especially if the student is good enough to be confident of gaining admission. However, in a recent Institute of International Education study, it is reported that three-quarters of the students apply to more than one U.S. school and over one-quarter apply to five or more institutions (Zikopoulos and Barber, 1986), Though this study does not present the percentages for undergraduates separately, the authors state that graduate students tend to make more applications than undergraduates. However, most foreign students do apply to several schools, and if only one school accepts the student's application, the candidate's credentials are probably relatively weak in some important areas.)

Institutional quality strongly influences the choice of schools made by foreign students (Zikopoulos and Barber, 1986). In the 1982 national norms, the most compelling reasons for choosing a particular institution were a good academic reputation (53.5 per cent) and the availability of special

TABLE 12 Reasons for Institutional Selection for Entering Freshmen

Reasons Noted as Very Important in Choosing this Institution	1972			1982			Per Cent Change		
	Non-Resident Foreign (%)	Resident Foreign (%)	National Norms (%)	Non-Resident Foreign (%)	Resident Foreign (%)	National Norms (%)	Non-Resident Foreign (%)	Resident Foreign (%)	National Norms (%)
Quality Issues									
Good academic reputation	61.1	50.9	48.4	60.7	64.3	53.5	−.7	26.3	10.5
Offered special programs	38.9	34.9	27.0	26.2	29.2	25.5	−32.6	−16.3	−5.6
Not accepted anywhere else	1.5	7.7	3.4	3.2	2.6	2.7	113.3	−66.2	−20.6
Recommendations									
Relatives wanted me to come	13.7	14.4	9.9	10.8	9.9	6.6	−21.2	−31.2	−33.3
Alumni advised me	21.3	17.7	17.1	20.8	15.2	14.9	−2.3	−14.1	−12.9
Guidance counselor advised me	15.7	11.5	6.9	11.1	12.2	7.7	−29.3	6.1	11.6
Financial Concerns									
Low tuition	6.7	24.4	19.6	5.7	13.9	20.6	−14.9	−43.0	5.1
Offered financial assistance	34.4	19.9	17.5	21.0	25.4	16.7	−39.0	27.6	−4.6

programs (25.5 per cent). The "quality" item was even more important to resident and non-resident aliens. Within the resident alien population in 1982, academic reputation was very important to 64.3 per cent of that sample, while 29.2 per cent said that the offering of special programs greatly influenced their decision; within the non-resident alien population, 60.7 per cent found academic reputation to be very important and 26.2 per cent stressed the offering of special programs.

These figures should not be interpreted to mean that over half of all freshmen actually attended colleges with "good academic reputations." Previous analyses of the CIRP data have shown that students attribute such reputations to many types of colleges, e.g. the one they think is best in their city or state, or the one with the best football team, or auto mechanics program (Solmon and Gordon, 1981). Here, foreign students might be attributing a good academic reputation to any school which is known in their home country.

Another interesting observation related to the influence of quality on foreign students' institutional choices is that the higher the fathers' educational level, the greater the concern for quality in selecting a U.S. school (Zikopoulos and Barber, 1986). Evidently, individuals from less educated families try to improve their lots simply by having more years of education, whereas the children with more highly educated fathers seek to increase the quality of their education in order to advance significantly. Our study has shown that a great proportion of the international freshmen come from families in which the father has a higher level of education than in the national norms. Thus, the fact that good academic reputation was cited by a larger proportion of foreign than domestic students could be explained in this manner.

Understandably, a very small proportion of each population indicated that their institutional choice was based on not being accepted anywhere else. In 1982, the proportion giving this response in the national norms and among resident aliens was 2.7 per cent and 2.6 per cent respectively. The response to this item was slightly higher among non-resident international students (3.2 per cent). These figures showed very little change from the 1972 figures. In the Zikopoulos and Barber study, 10.5 per cent of the undergraduate *and* graduate students decided to attend a particular institution because they were accepted in only one school (Zikopoulos and Barber, 1986). Thus, one could speculate that this phenomenon is much more common within the graduate student population.

The second category, recommendations from significant others, played a role in the selection of institution for all students. Specifically, students received advice from relatives, alumni, and guidance counselors. In 1982, the national norms showed the advice of alumni to be the most important (14.9 per cent), followed by guidance counselors (7.7 per cent) and relatives (6.6 per cent). For the resident foreign students, decisions were influenced by alumni (15.2 per cent), guidance counselors (12.2 per cent) and relatives (9.9 per cent). The same order prevailed in the non-resident international student population. However, the degree of influence attributable to recommendations appeared to be stronger for these students with 20.8 per cent citing alumni advice, 11.1 per cent listening to guidance counselors, and 10.8 per cent responding to the wishes of relatives.

Here, it is interesting to note the greater degree of influence exerted by families and friends of foreign students compared to the predominantly-American national norms. But perhaps more important is the fact that more than 20 percent of students coming from abroad select their college on the advice of people who have personally attended it. This may have been the most helpful source of information available to them. This phenomenon was found in Zikopoulos and Barber's study, in which three-fourths of the international students received information from college catalogs and brochures, but 62.3 per cent augmented this information with advice of friends attending U.S. institutions and 40 percent with the advice of relatives (Zikopoulos and Barber, 1986). Therefore, foreign graduates are an important recruiting source for many colleges and universities. Institutions interested in expanding their foreign enrollments should make more explicit use of such graduates, as they can be very effective recruiters when they return home.

From a comparison of the 1972 and the 1982 figures, one can see a shifting of the influence that quality and recommendations exert over the choice of schools made by freshmen. In terms of quality issues, the offering of special programs played a smaller role in students' decision-making processes in 1982, though the decrease was less noticeable in the national norms than for the populations of foreign-born students. The academic reputation of the institution increased in importance for the resident aliens and in the national norms, while the non-resident international students remained at almost the same high level in both years.

The role of recommendations by relatives and alumni in institutional selection decreased for all groups over the ten year period studied. By contrast, the influence of guidance counselors increased in the national norms and, to a lesser degree, among the resident aliens, while the counselors' influence dropped in the non-resident foreign student population.

Finally, the CIRP data provide insight into the degree of influence that financial concerns exert over the selection of a school for first-time, full-time freshmen. These data reveal that fewer foreign students than domestic ones choose their college on the basis of low tuition. Since all non-resident foreign students must pay out-of-state tuition in public colleges, the cost variation for them is less than it is for domestic students. Therefore, differences in cost would not be expected to be as important as they are for domestic students who can select colleges from a much broader price range. Moreover, tuition represents a smaller fraction of total costs of college for foreign students, who must travel to the U.S., perhaps purchase new types of clothing, and so on.

It is not surprising, then, that low tuition is one of the two weakest factors in relation to the choice of institution for non-resident aliens. In 1972, only 6.7 per cent selected a college on this basis, and even fewer, 5.7 per cent, were influenced by low tuition in making their choices in 1982. The national norm figures remained constant between 1972 and 1982, with about 20 per cent of the total freshman population making their college choice because the price was right. The low tuition factor was very important to 24.4 per cent of the resident alien freshmen in 1972; however, by 1982, only 13.9 per cent of this population made their college selection based on this cost factor.

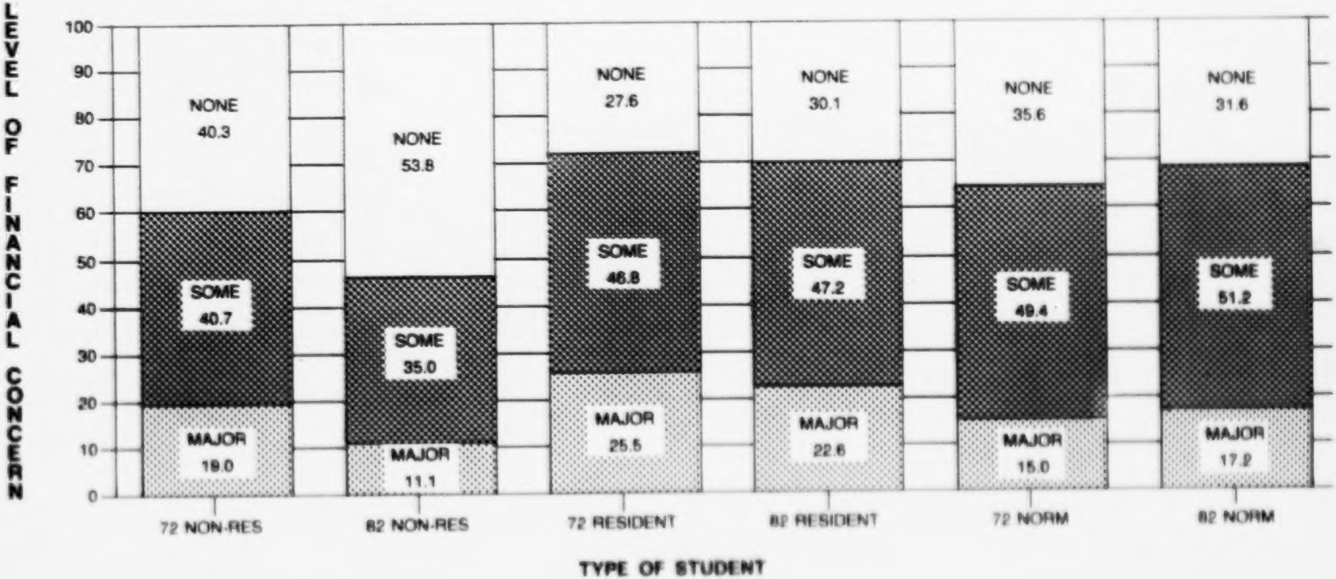
Of course this does not mean that tuitions can be raised without limit and still have no effect on foreign student enrollments. When foreign students were hit with a special levy by universities in the United Kingdom, foreign enrollments there fell dramatically. In a report of the Committee on Foreign Students and Institutional Policy entitled *Foreign Students and Institutional Policy: Toward an Agenda for Action* (1982), the decline in foreign enrollments in United Kingdom schools was documented. After the special schedule of tuition costs was introduced in the 1979-1980 academic year, the new foreign enrollments dropped by 11 per cent at universities and 29 per cent in polytechnics. Additionally, the 1980 foreign student applications declined by 43 per cent (Committee on Foreign Students and Institutional Policy, 1982, p. 20).

Institutional offers of financial assistance had varying degrees of influence on school choice for the foreign and domestic populations. In 1972, the proportion of non-resident international students who found this factor to be very important (34.4 per cent) was nearly double that reported in the national norms (17.5 per cent). Even among resident foreign-born freshmen, this factor held more importance (19.9 per cent) than in the national norms. In 1982, the offer of financial assistance decreased in importance in the national norm figures (to 16.7 per cent) and among non-resident foreign freshmen (to 21.0 per cent). There was less financial aid available by 1982. The percentage of resident aliens influenced by this factor increased to 25.4 per cent in the later year. Overall, the offer of financial assistance was still more influential for foreign-born students than for the predominantly-American national norms. The Zikopoulos and Barber study corroborates this finding in that the offer of financial support appears as the second most important factor in the selection decisions of foreign students (Zikopoulos and Barber, 1986).

Since less student aid was available in 1982, it was more likely that any student would be making his/her choice of colleges between those which offered aid and those which did not. In the earlier period, if aid were available everywhere, it would not be a factor in selection. It is interesting that despite their apparent relative affluence, foreign students still rely upon financial aid to a great extent.This is due in part to the greater costs foreigners incur when attending U.S. institutions. It also may reflect difficulties of bringing other currencies into the United States, as well as exchange rate problems.

In another section of the CIRP questionnaire, students expressed concerns about financing their college education. The entering freshmen indicated their level of concern about financing college (Table 13). In 1972, 15.0 per cent of the freshman class considered financing their college work to be a major concern. In this same year, 25.5 per cent of the resident aliens and 19.0 per cent of the non-resident foreign freshmen expressed a high level of concern about paying for college. In 1972, 49.4 per cent of all freshmen indicated some concern about financing college. Among the subset of resident aliens, 46.8 per cent had this level of concern, while among non-resident aliens 40.7 per cent registered some concern about their school finances. Thus, in 1972, a large majority of students expressed some degree of concern about paying for their college education. Also, a larger than average proportion of the non-resident foreign freshmen showed no concern

TABLE 13 Level of Concern About Financing College
Plan to Work an Outside Job During College



about money. Here, the lower level of concern among the non-resident foreign freshmen may be an artifact of the necessity of settling all financial arrangements in order to come to the United States and enroll. Probably most of the financial difficulties that foreign students experience appear in the later years of their college experience when inflation in their home country and problems related to balance of payments begin to erode the monetary allotment these students are awarded for their study abroad.

Interestingly, by 1982, non-resident foreign students were even less concerned about financing college than they had been in 1972. In 1982, 46.1 per cent of these students expressed some level of concern about college finances, compared with 59.7 per cent in 1972. Perhaps more foreign students selected colleges that offered financial aid and then put their concerns behind them. Among the resident aliens there was also a decrease in the proportion of students with financial worries, though a substantial majority (69.8 per cent) still indicated at least some concern. These findings are consistent with previous findings about the relatively high SES of non-resident foreign students in the United States. Within the total freshmen population, the 1972 to 1982 trend was in just the opposite direction. There was a decrease of 11.2 per cent in the incoming freshmen who had no financial concerns about college, and an increase of 14.7 per cent in the share of all freshmen for whom financing college was a major concern.

Yet another indicator of financial concern is found in the proportions of freshmen who plan to work at an outside job during college (Table 13). Presumably, it would be preferable not to work, unless it is a financial necessity. Thus, the proportion of students who work is a rough measure of the number of students who have financial problems. This is particularly true in relation to the national norms and the resident alien sub-group, as the option of employment is readily available to most of these individuals. It is not the case for non-resident foreign students, who are not normally able to obtain work permits. In fact, if foreign students were able to take outside jobs while they attend college, their concern about finances would be even lower than it now is. In 1972, 34.7 per cent of all entering freshmen intended to hold an outside job during college, while among the resident alien segment of this population, 41.2 per cent planned to work their way through school. Also in 1972, a surprising 14.5 per cent of the non-resident foreign freshmen planned to hold outside jobs during their college years; perhaps these were low level jobs that did not require work visas. By 1982, the picture had changed dramatically in the national norms as well as for the two sub-groups of foreign students. Generally, there was a substantial decline in the percentage of students who intended to work while attending college full time. The national norm figures fell to 21.3 per cent, a drop of 38.6 per cent. A larger decline, 66.0 per cent, was seen in the group of resident aliens, so that by 1982, only 14.0 per cent indicated they would be working during school. The greatest decrease in the percentage of working students, 84.1 per cent, was seen within the non-resident foreign freshmen group, from 14.5 per cent in 1972 to only 2.3 per cent in 1982. This may reflect the fact that wealthier foreign students were attending American colleges, or that perhaps there was a relative scarcity of jobs for students in 1982.

III.

Enrollments

The West-Southwest region has attracted the largest proportion of foreign students, and their enrollments have increased sharply there and in the Southeast; the West-Southwest also attracts a disproportionate number of domestic undergraduates. Graduate enrollments appear more influenced by high academic quality, while undergraduate enrollments show interest in climatic amenities. Compared to domestic enrollments, the full-time equivalent and graduate share of foreign enrollments is relatively larger than the head count share, with implications for the cost of educating foreign students.

Now that we have examined some of the reasons students have for selecting their school, we turn to an examination of the actual enrollment patterns of foreign and domestic students for the years 1976 and 1982. These enrollment patterns are important for understanding the foreign student factor in higher education. In the HEGIS data, "foreign" and "international" students include only non-resident foreign-born students who are enrolled in American institutions of higher education. As mentioned in the introduction, the "domestic" or "American resident" population includes resident aliens who have been admitted for permanent residence in the United States, as well as American citizens.

Section A: Enrollments by Regions—Undergraduates

The HEGIS data give us a view of the enrollments in colleges and universities in six regions: North Atlantic, Midwest, Southeast, West-Southwest, U.S. Service Schools, and Outlying Areas.[1] For the purpose of this study, only the four major regions are of interest; information regarding enrollments in U.S. Service Schools and the Outlying Regions will not be considered here.

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[1] The states which lie within each HEGIS region are as follows:

North Atlantic: Connecticut, Delaware, Maine, Vermont, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Washington D.C.;

Southeast: Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia;

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin;

West-Southwest: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming.

During the period between 1976 and 1982, when the enrollments of undergraduate foreign students (Table 14) increased by 55.2 per cent, the Southeast and West-Southwest regions received the greatest increases in foreign student enrollments. Enrollments increased in the Southeast by 78.3 per cent and in the West-Southwest by 56.2 per cent. The schools of the West-Southwest have consistently attracted the greatest proportion of foreign undergraduates at 41.4 per cent. The next largest concentration of foreign students was found in the North Atlantic region which had 20.6 per cent of the total foreign undergraduates in 1982. There was a 7.6 per cent decline in the proportion of the foreign students in this region, even though the absolute number actually increased by 43.5 per cent.

These findings contrast somewhat with the more stable patterns of undergraduate resident enrollments over the same time period. The undergraduate enrollment of American residents increased overall by 13.8 per cent. There have consistently been greater numbers of domestic students enrolled in the West-Southwest region than in any other region. The general picture of the proportions of domestic undergraduates by region has changed very little between 1976 and 1982.

Finally, while foreign students represent 2.1 per cent of the total 1982 undergraduate population in the United States, the proportion is almost three per cent in the West-Southwest. In the remainder of the regions, the foreign students comprise about two per cent of the student population.

The popularity and growth in foreign student enrollments in the West-Southwest and the Southeast have been explained in terms of climate preference and the greater familiarity foreign students have with these regions of the United States. A great number of foreign students from Latin America and Africa may choose these regions because the climates are similar to that of their home countries. The special clothing needs of winter climates as well as the additional costs associated with colder climates (e.g. utilities, transportation) may enter into the selection decision of students from tropical or temperate climes. In the Institute of International Education study mentioned above, some 76.3 per cent of the foreign students questioned considered the climate in which the U.S. school was located to have at least some degree of importance in selection decisions (Zikopoulos and Barber, 1986).

Additionally, there is some evidence that Asian students have more information about the western United States, resulting in a preference for this region. The information factor plays another role in that students from a particular country who enroll in an American institution will pass on information to their compatriots planning to study in the United States, thereby increasing the probability that future students will come to the more familiar setting for study (Zikopoulos and Barber, 1986). In the present study, we have seen this effect in the influence on foreign students' choices of college that is exerted by alumni recommendations.

Section B: Enrollments by Regions—Graduate Students

Over the same period, between 1976 and 1982, the patterns of enrollment of foreign and domestic graduate students (Table 15) differed in several

TABLE 14 Undergraduate Enrollment by Region Domestic and Foreign Students

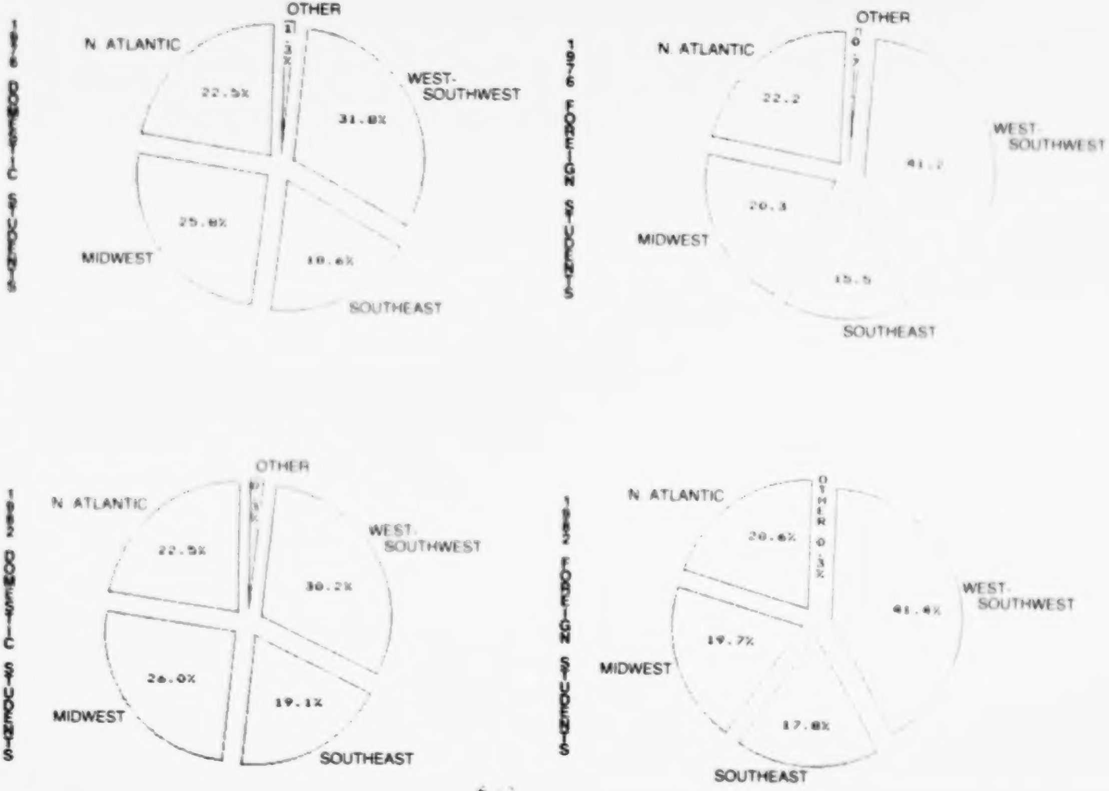

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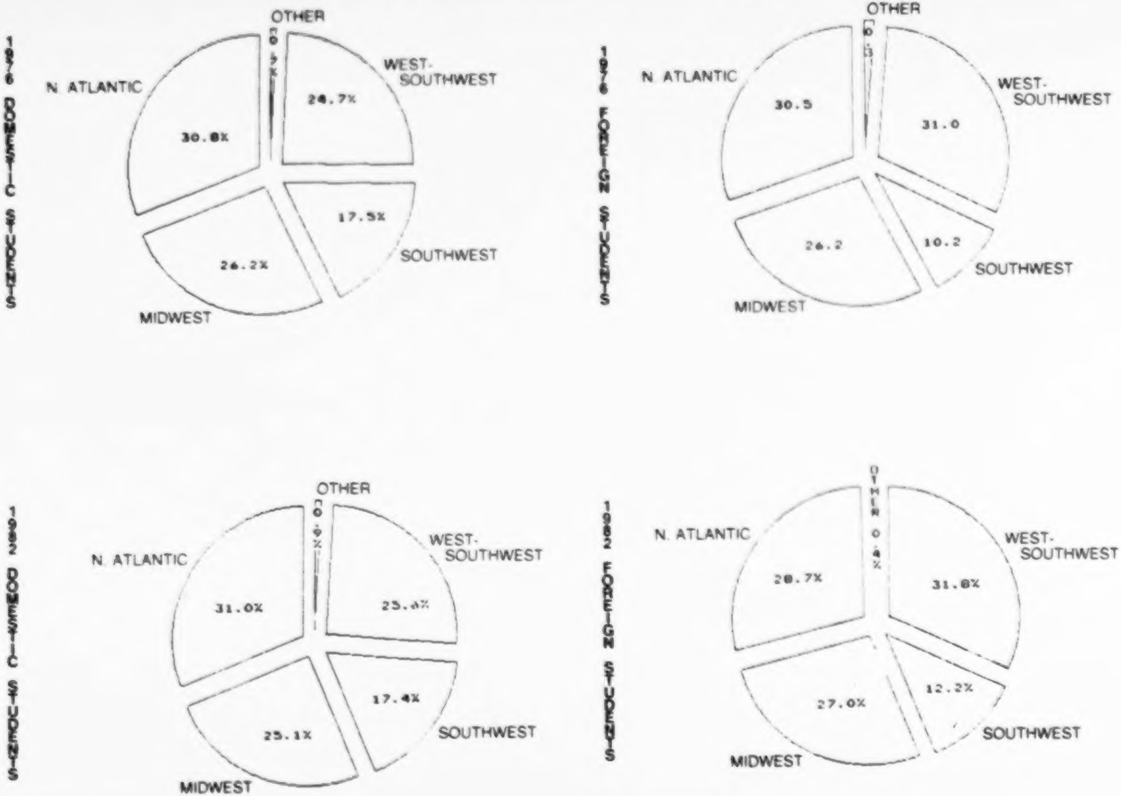
TABLE 15 Graduate Enrollment by Region Domestic and Foreign



respects. First of all, while graduate enrollments in all regions increased by 49.6 per cent for foreign students, that same period saw a decline of 2.5 per cent in domestic enrollments. The regions in which the domestic decline occurred were in the Midwest (−6.8 per cent), the Southeast (−3.5 per cent), and in the North Atlantic (−2.1 per cent). These same regions experienced growth in the proportion of foreign students. The foreign student enrollments increased by 40.8 per cent in the North Atlantic, 44.2 percent in the Midwest, 79.5 per cent in the Southeast, and 53.4 per cent in the West-Southwest.

From these figures it appears that at the graduate level, foreign students could, overall, be filling seats left empty by declining domestic demand, but with variations depending upon the fields in which foreign students enroll. In actual numbers, there was an increase of 32,896 foreign graduate students from 1976 to 1982. During this same time period, there was a decrease of 25,822 in the number of domestic graduate students. Therefore, foreign graduate students have more than made up for domestic declines. (However, if foreigners are enrolling in greater numbers in engineering and if there are domestic declines in the humanities, foreign students are not really filling empty seats. Field differences will be discussed below.) While there was growth in foreign graduate student enrollments in all regions, by far the greatest growth was in the Southeast. Here, foreign enrollments increased by 79.5 per cent. Additionally, there was a decline in the proportion of foreign enrollees in the North Atlantic and Midwest, though the actual numbers increased.

Despite the substantial differences in growth between foreign and domestic students, the proportions of each respective population by region are remarkably similar. This similarity may be an indication that the graduate programs in each region present the same degree of attraction to each population, perhaps due to the quality of institutions in that region. While foreign undergraduates seem to make their college selection based on the desirability of climate in different locations or upon familiarity of the region to foreign students, graduate students from other countries seem to pick institutions according to institutional or departmental strength, just as their American counterparts do. Therefore, it is conceivable that quality balances geographic considerations for graduate students, whereas geography prevails for undergrads. This conclusion matches the findings of the 1986 Zikopoulos and Barber study which found that institutional quality was a more powerful attractor for graduate students, than for undergraduates.

Section C: Enrollment by Region: Comparison of Full-time and Part-time

Another interesting perspective is gained by examining the foreign and domestic enrollments for all levels of higher education according to whether students are enrolled in full-time or part-time programs (Tables 16, 17, and 18). This analysis groups undergraduate and graduate students together.

In 1976, foreign students accounted for 2.4 per cent of all full-time students and 1.4 per cent of all part-time students in American institutions of higher

TABLE 16 Total 1976 Enrollment by Region: Comparison of Full Time and Part Time Domestic and Foreign Students

Region	Full Time				Part Time			
	Domestic Students		Foreign Students		Domestic Students		Foreign Students	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
North Atlantic	1,570,713	25.2	38,306	25.2	641,130	20.1	10,795	24.4
Midwest	1,627,653	26.1	35,212	23.2	808,466	25.3	9,765	22.1
Southeast	1,254,910	20.1	21,866	14.4	485,454	15.2	5,002	11.3
West-Southwest	1,690,010	27.1	55,501	36.5	1,237,268	38.8	18,589	42.0
U.S. Service Schools	17,221	.3	249	.2	0	0.0	0	0.0
Outlying areas	81,438	1.3	884	.6	18,386	.6	75	.2
Total	6,241,945	100.0	152,018	100.0	3,190,704	100.0	44,226	100.0

TABLE 17 Total 1982 Enrollment by Region: Comparison of Full Time and Part Time Domestic and Foreign Students

Region	Full Time				Part Time			
	Domestic Students		Foreign Students		Domestic Students		Foreign Students	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
North Atlantic	1,661,608	25.0	57,280	23.8	795,952	20.3	12,623	20.8
Midwest	1,725,645	25.9	55,528	23.1	1,016,383	26.0	11,294	18.6
Southeast	1,398,726	21.0	40,829	17.0	598,120	15.3	7,164	11.8
West-Southwest	1,719,037	25.8	85,663	35.6	1,476,534	37.7	29,464	48.6
U.S. Service Schools	18,686	.3	353	.1	123	.0	0	0.0
Outlying areas	127,952	1.9	667	.3	26,592	.7	62	.1
Total	6,651,654	100.0	240,320	100.0	3,913,704	100.0	60,607	100.0

TABLE 18 Per Cent Change in Full-Time and Part-Time Enrollments for Domestic and Foreign Students 1976–1982

	Full-Time		Part-Time	
Region	Domestic Students	Foreign Students	Domestic Students	Foreign Students
North Atlantic	5.8%	49.5%	24.1%	16.9%
Midwest	6.0%	57.7%	25.7%	15.7%
Southeast	11.5%	86.7%	23.2%	43.2%
West-Southwest	1.7%	54.3%	19.3%	58.5%
U.S. Service Schools	8.5%	41.8%	0.0%	0.0%
Outlying areas	57.1%	−24.5%	44.6%	−17.3%
Total change	6.6%	58.1%	22.7%	37.0%

education. By 1982, 3.5 per cent of the full-time students were foreign and 1.5 per cent were part-time. Thus, there was an increase in the proportion of full-time students, while the proportion of part-time students remained relatively constant. The percentage change information (Table 18) indicates that there was an increase of 37 percent in foreign part-time students and an increase of 58.1 per cent in foreign students who attended full-time.

One reason there are many more full-time foreign students is the difficulty that these students have in securing employment in the United States. Visas which allow foreign students to work are extremely difficult to obtain. Indeed, we saw earlier that only about two per cent of the non-resident foreign freshmen had intentions of working during college in 1982 (Table 13). Also, students from other countries may well be encouraged by their parents or public/private sponsors to complete their studies in as short a time as possible. Particularly in countries experiencing high rates of inflation, there is a decided advantage for the family or sponsoring agency and the student himself/herself not to stretch out the tuition payments needed to complete the desired degree. Hence, most foreign students pursue their studies on a full-time basis.

For American residents the picture is very different indeed. During this six year period there was an increase of only 6.6 per cent in the full-time domestic enrollees. The numbers of part-time resident students increased by 22.7 per cent. This increase may be the result of financial aid cutbacks which would create the necessity for students to support themselves through work while they attend institutions of higher education.

The percentage increases in full-time and part-time domestic students are small in comparison with the increases in foreign enrollment, though one should keep in mind that in 1982 the domestic full-time enrollment alone was about 27 times greater than the foreign full-time enrollment. For part-time students, there were about 64 times as many American resident students as foreign students.

In a regional breakdown of full-time enrollments, the proportions for foreign and domestic students are fairly similar. However, the domestic students appear to be more evenly distributed among the four major regions. In 1982 (Table 17), the North Atlantic, Midwest, and West-Southwest each had about 25 per cent of the full-time domestic enrollment. Only slightly less than the other regions, the Southeastern schools enrolled 21 per cent of the full-time domestic college population. These figures represented only a small change from the data for 1976. In the earlier year, shown in Table 16, the West-Southwest enrolled 27.1 per cent, the Midwest enrolled 26.1 per cent, North-Atlantic enrolled 25.2 per cent, and the Southeast enrolled 20.1 per cent of all American residents who were full-time students.

The regional profile for full-time foreign students has also shown little change between 1976 and 1982 (Table 18). For both years, the greatest concentration of full-time foreign students was found in the West-Southwest. In 1976, schools in the West-Southwest enrolled 36.5 per cent of this population and in 1982, 35.6 per cent were enrolled. The North Atlantic region was the second most popular region with 25.2 per cent of the foreign full-time students in 1976 and 23.8 per cent of this population in 1982. The proportion of international students in the Midwest remained constant at about 23 per cent for both years. And, finally, the Southeast region enrolled the smallest number of full-time foreigners, accounting for 14.4 per cent in 1976 and 17 per cent in 1982.

Thus, overall there has been very little change in the distribution of either foreign or domestic full-time students by region over the six year period discussed here.

Part-time students present a somewhat different distribution among the regions. First of all, there has been very little change in the percentages of American resident enrollment by region. For both years, schools in the North Atlantic region have enrolled about 20 per cent of this student population. The Midwest schools enrolled 25.3 per cent of the domestic part-time students in 1976 and 26.0 per cent in 1982. The West-Southwest schools accounted for 38.8 per cent of this population in 1976 and 37.7 per cent in 1982. Finally, domestic part-time enrollments in the Southeast remained constant at approximately 15 per cent.

The much smaller, but growing, population of foreign part-time students has experienced a considerable shift in their distribution by region of attendance. In spite of the fact that all regions discussed here experienced growth in foreign part-time enrollments, the North Atlantic and Midwest regions showed a decline in the shares of the overall population that enrolled in these regions. Schools in the North Atlantic region which had 24.4 per cent of the foreign part-time population in 1976 had only 20.8 per cent of that population in 1982. In the Midwest the percentages fell from 22.1 per cent in 1976 to only 18.6 per cent in 1982. The West-Southwest region increased in its proportion of the international part-time student enrollees. Enrollments in this region rose to 48.6 per cent of the total foreign part-time population from 42.0 per cent in 1976. The portion of these students enrolled in the Southeast remained fairly constant, between 11 and 12 per cent for both years.

Section D: Comparison of College-aged Population and Enrollments by Region

A final comparison should be made before completing this discussion of the regional college enrollments for foreign and domestic students. The regions by which the HEGIS[1] data have been sorted are not equal in size in terms of total population. Therefore, one would not expect to see an equal distribution of students among these regions. It seems more likely that the distribution of students is a function of the total regional population of college-aged students or, perhaps, the number and capacity of colleges and universities within these regions. That is, most students may enroll near where they live. To test this, we have compared total regional population aged 18–20 to regional undergraduate and graduate enrollments in 1976 and 1982 (Table 19).

It appears that on balance undergraduate students from the North Atlantic leave the region for college. In 1976, 30.3 per cent of the 18–20 year olds lived in this area of the country, but only 22.5 per cent of the undergraduates attended school in the North Atlantic states. In 1982, the figures were similar. In this year, 29.3 per cent of the population aged 18–20 resided in the North Atlantic states, while only 22.4 per cent of the undergraduate population attended college in these states.

This exit pattern is not apparent in the percentages of graduate students who are enrolled in the North Atlantic states, although the most appropriate age cohort for comparison probably should be older than 18–20. There is only a half a point difference in the proportions of 18–20 year olds and the proportions of all graduate students enrolled in this region in 1976. In 1982, there was a difference of only one and a half points.

In the Midwestern states, in both 1976 and 1982, the proportion of undergraduate students who attended Midwestern schools was slightly smaller than the percentage of 18–20 year olds who resided in that region. As for the proportions of graduate students who were enrolled in Midwestern schools, we note that the percentages of graduates enrolled in this area of the United States are only slightly smaller than the resident population of 18–20 year olds.

Among the Southeastern states, one finds significantly smaller proportions of undergraduate and graduate students enrolled in the regional schools than might be expected from the percentage of 18–20 year olds who reside in these states. In 1976, 25.7 per cent of the total college-aged population resided in the Southeastern portion of the United States. For this same year, only 18.5 per cent of all undergraduates and 17.1 per cent of all graduate students attended colleges or universities in this region. Similarly, in 1982, 26.9 per cent of the 18–20 population lived in the Southeast, while only 19.0 per cent of the undergraduates and 16.7 per cent of the graduate students went to Southeastern schools.

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[1] The states which lie within each HEGIS region are as follows:
North Atlantic: Connecticut, Delaware, Maine, Vermont, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Washington D.C.;
Southeast: Alabama, Arkansas, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia;
Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin;
West-Southwest: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington, and Wyoming.

The opposite situation is seen when one compares the college enrollments with the college-aged population in the West-Southwest. Institutions of higher education in this region of the United States probably collect many of the 18–20 year olds who leave the other regions. In 1976, only 16.3 per cent of all 18–20 year olds lived in states of the West-Southwest, but the colleges and universities in this region enrolled 31.9 per cent of all undergraduates and 25.1 per cent of all graduate students in 1976. This pattern persisted in 1982 when the West-Southwest contained only 17.6 per cent of the nation's 18–20 year old residents and had 30.9 per cent of all undergraduates and 26.2 per cent of graduate population.

Our hypothesis that undergraduate student choice is based on consumption values whereas graduate student choice is more dependent on institutional quality seems to be supported. In particular, there any many excellent graduate schools in the Northeast and these appeal to graduate students to a degree that undergraduate programs in that region do not. Both U.S. students and foreign students, at the undergraduate level, are attracted to regions where the climatic amenities are conspicuous, while at the graduate level, both groups give greater weight to academic quality. The impact of foreign students on U.S. institutions of higher education in different regions varies, then, by academic level.

Section E: Opening Fall Enrollment and Full-time Equivalent Counts by Control and Type of Institution

Still another comparison of foreign and domestic students is based on the breakdown of enrollment information by the source of control, i.e. public or private, and the type of higher education institution, i.e. two-year, four-year college, or university.

The data relating to institutional control and type are presented in two different forms: by enrollments and by full-time equivalent (FTE) counts. The full-time equivalent figures are derived from a formula which gives different weights to students depending on their level (graduate or undergraduate) and the number of hours for which they are enrolled. In establishing the full-time equivalent counts, a full-time undergraduate receives a weight of 1.0; part-time undergraduates are given a weight of .33 1/3; full-time graduate students receive a weight of 3.0 because, on average, the cost of graduate students is approximately three times that of undergraduate costs; finally, part-time graduate students receive a weight of 1.0, or one-third that of full-time graduate students. By comparing the foreign and domestic enrollments using the full-time equivalent figures, cost implications of different enrollment patterns can be illustrated.

In terms of cost, foreign students represent different proportions of the total enrollment of students. The head count for the Fall of 1976 indicates that two per cent of the total student population in public and private colleges and universities were foreign. However, when the cost-related, full-time

49

equivalent figures are used, we find that the international students account for 3.1 per cent of the population. For 1982, the cost weighting resulted in foreign students comprising 4.4 per cent of the overall college population, though the head count was only 2.6 per cent. The fact that the weighting creates an upward shift in the proportion of foreign students indicates that these students are generally more expensive to educate than their American counterparts. This is because foreign students are more likely to be full-time and are also more likely to be graduate students. These figures do not take account of whether or not foreign students enroll in expensive disciplines requiring high cost faculty and equipment, nor do they take into account the cost of special services, such as English-as-a-Second-Language, which may be used by foreign students.

The pattern of higher cost implications of foreign students is evident also in enrollment patterns in public and private institutions (Tables 20 and 21). In 1976, there were 145,879 foreign students enrolled in all types of public institutions. This number accounted for 1.7 per cent of the total enrollment in all public colleges and universities. The full-time equivalent figure boosted the percentage to 2.7 per cent. For 1982, the 219,343 foreign students in public institutions accounted for 2.2 per cent of the total; the FTE figures almost doubled the proportion to 3.9 per cent of the total enrollment in the public category.

In institutions under private control, the pattern persists. In 1976, the 73,871 foreign students made up 3.1 per cent of total private enrollments. The comparable FTE percentage was 4.5 per cent. The 1982 figures show a head count of 112,807 (4 per cent) foreign students in private institutions. The comparable FTE indicate that, in terms of costs, non-resident foreign students accounted for 5.9 per cent of the total college population under private control.

One of the most interesting findings related to the breakdown of student enrollments by control of institution is that close to 80 per cent of the domestic students attend some type of public institution (Table 20), while only 66 per cent of foreign students are enrolled in public institutions. In 1982, foreign students accounted for about 2.2 per cent of the student body at public universities and about four per cent at private universities. Since foreign students must pay out-of-state tuition at public institutions, the price differences between public and private schools are narrower for foreign students. Thus, pivate institutions are relatively cheaper for foreign students than for domestic students and are more of an equal choice, in terms of cost, for the former group.

The enrollment data have been broken down further to separate universities from colleges (both two-year and four-year) in addition to disaggregation by public and private control. (See Tables 22, 23, and 24.)

Looking just at the 1982 figures, the differences in the enrollment behavior of foreign students in public and private universities can be compared. The share of foreign students in private universities as a proportion of all private university students was 6.1 per cent, using head count figures; using the full-time equivalent data, it was 9.5 per cent, a 56 per cent difference. In public universities, the FTE share of international students was 6.8 per cent of all students in that category, which is 70 per cent higher than the 4.0 per

TABLE 19 Comparison of College Aged Population and Undergraduate / Graduate Enrollments by Region for 1976 and 1982

Region	1976				1982			
	Total 18–20 Yrs Population	Per Cent Total Population	Percentage Of All Undergraduate Students	Percentage Of All Graduate Students	Total 18–20 Yrs Population	Per Cent Total Population	Percentage Of All Undergraduate Students	Percentage Of All Graduate Students
North Atlantic	3,073,000	30.3	22.5	30.8	2,941,000	29.3	22.4	30.8
Midwest	2,815,000	27.7	25.7	26.3	2,635,000	26.2	25.9	25.2
Southeast	2,606,000	25.7	18.5	17.1	2,701,000	26.9	19.0	16.9
West-Southwest	1,651,000	16.3	31.9	25.1	1,774,000	17.6	30.9	26.2
Totals	10,145,000	100.0	98.6*	99.3*	10,051,000	100.0	98.2*	99.1*

* Excluding enrollments in U.S. Service Schools and outlying areas.

Sources: 1976—Population Estimates & Projections, Estimate of Population of States by Age, P25, No. 734, November, 1978.
1982—Population Estimates & Projections, Estimate of Population of States by Age, P25, No. 970, 1985.

TABLE 20 Comparison of 1976 and 1982 Opening Fall Enrollment and Full-Time Equivalent Counts of Domestic and Foreign Students by Public and Private Categories

Control and Type of Institution	1976							
	Opening Fall Enrollments				Full-Time Equivalents			
	Domestic Students		Foreign Students		Domestic Students		Foreign Students	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Public institutions	8,566,755	78.6	145,879	66.4	6,407,936	75.4	176,061	64.3
Private institutions	2,334,921	21.4	73,871	33.6	2,092,953	24.6	97,920	35.7
Totals	10,901,676	100.0	219,750	100.0	8,500,889	100.0	273,981	100.0

Control and Type of Institution	1982							
	Opening Fall Enrollments				Full-Time Equivalents			
	Domestic Students		Foreign Students		Domestic Students		Foreign Students	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Public institutions	9,542,902	77.9	219,343	66.0	6,744,779	73.9	274,771	65.0
Private institutions	2,713,468	22.1	112,807	34.0	2,378,229	26.1	148,127	35.0
Totals	12,256,370	100.0	332,150	100.0	9,123,008	100.0	422,898	100.0

TABLE 21 Per Cent Change in Opening Fall Enrollment and Full-Time Equivalent Counts 1976 to 1982 Public and Private Institutions

Control and Type of Institution	Opening Fall Enrollments		Full-Time Equivalents	
	Domestic Students	Foreign Students	Domestic Students	Foreign Students
Public institutions	11.4%	50.4%	5.3%	56.1%
Private institutions	16.2%	52.7%	13.6%	51.3%
Total change	12.4%	51.1%	7.3%	54.4%

cent figure derived from the head count. These differences indicate that foreign students are more likely to be full-time and graduate-level students, and to the extent that these types of students demand more resources than do part-time or undergraduate students, they will be more expensive to educate. The greatest cost implications of foreign students will, therefore, occur at the university level, because the university category, rather than four-year and two-year colleges, is most likely to have graduate students, whether foreign or domestic.

The cost consideration had almost no effect at the two-year colleges, whether public or private, probably because there is less variation in the types of students at these institutions. Two-year colleges have no graduate students and mainly part-time students.

There was a modest effect in foreign enrollments in the four-year college category, regardless of control. For the publicly-controlled four-year colleges in 1982, the share of 75,262 foreign students (Table 23) was 2.5 per cent of the population in this category; using the FTE figures, this group accounted for 3.5 per cent of all students in four-year colleges in 1982. In the privately-controlled four-year programs for 1982, the international student enrollment of 64,252 represented 3.5 per cent of this category's population; the full-time equivalent figures brought this percentage up to 4.6 per cent. Here again, the cost effects are not as great as at the university level, because there is less variation in the student population along cost dimensions. Colleges have relatively few graduate students and so the only major cost variation comes from the full-time or part-time status of college students.

By looking at the per cent changes in the full-time equivalent figures from 1976 to 1982 (Table 24), we can identify the types of institutions in which the growing enrollments of foreign students have added the greatest cost in regard to full-time attendance and graduate student status. The greatest cost impact of international students appears to be in the category of private four-year colleges. The full-time equivalent count of foreign students increased by as much as 70.1 per cent over that time period. The public four-year colleges were next, with an increase in the cost-related international student counts of 64.7 per cent between 1976 and 1982. These figures may reflect the opportunities in four year colleges to obtain graduate degrees, and it is also consistent with enrollment patterns. The foreign FTE count at public universities increased by 55.7 per cent, and at private universities by 37.3 per cent. In the public two-year colleges, foreign FTEs increased by 39.0 per cent and in private two-year colleges by 32.3 per cent.

With respect to numbers of domestic students in different institutional categories, the FTE enrollment figures show that there has been little change in domestic enrollment patterns in regard to academic level and part-time or full-time attendance between 1976 and 1982. The greatest change in the cost-sensitive enrollment figures for American residents is in the two-year colleges. The private two-year colleges showed an increase of 73.8 per cent (from a small base) in the domestic FTE enrollment figures from 1976 to 1982 (Table 24). In public two-year programs, domestic FTE counts increased by 12.2 per cent. There was an increase of 13.5 per cent in the cost-related enrollment figures for the private four-year colleges. However, the universities, public or private, saw only slight percentage changes in domestic FTE enrollments between 1976 and 1982. For public universities, the FTE counts increased by only one per cent. The FTE figures grew by only three per cent in private universities.

These small changes in FTE enrollments of American residents are even more significant when coupled with the fact that overall, actual domestic enrollments grew by over a million students (1,354,694) between 1976 and 1982, resulting in a 12.4 per cent growth in the domestic postsecondary education population. By comparison, the growth in the FTE figures for domestic students was only 7.3 per cent. For the domestic population the largest area of growth was in the two-year colleges, which have large numbers of part-time students. It is evident that there has been internal shifting in the types of domestic students enrolling in institutions of higher education. The growth in actual head count has been dominated by part-time and undergraduate students.

To some extent the contrast between large changes in foreign FTE counts and the relatively small changes in domestic FTE figures can undoubtedly be attributed to differences in the growth rate of the foreign and the domestic student populations. Foreign student enrollments in 1982 are higher than 1976 enrollments by 112,400 students, an increase of 51.1 per cent. Domestic growth in the same period was 12.4 per cent, as noted above. The fact that there is a great deal more change in the cost picture for the foreign student is, in part, an artifact of the greater degree of growth relative to the smaller overall size of this group. Additionally, more foreign students are full-time and studying at the graduate level. Thus, each individual increase counts for more in terms of the FTE cost weighting.

The area of great difference between foreign and domestic students is found in the enrollment figures in two-year programs, regardless of whether the school is public or private. In 1982, 18.5 per cent of the foreign student population attended two-year programs in the United States, compared to 38.8 per cent of the domestic college population (Table 23). Several factors may account for this difference. First, the two-year schools are probably much less well-known abroad. Second, the associate of arts degree awarded by two-year colleges may not carry sufficient weight to warrant investment in it by a foreign student or a sponsoring agency. Foreign countries may be more likely to have local training programs which would be roughly equivalent

TABLE 22 Opening Fall Enrollments and Full-Time Equivalents by Institutional Type and Control

	1976							
	Opening Fall Enrollments				Full-Time Equivalents			
	Domestic Students		Foreign Students		Domestic Students		Foreign Students	
Control and Type of Institution	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Public institutions:								
Universities	2,045,271	18.8	58,874	26.8	2,030,915	23.9	96,617	35.3
4-year colleges	2,794,828	25.6	47,754	21.7	2,353,159	27.7	54,106	19.7
2-year colleges	3,726,656	34.2	39,251	17.9	2,023,862	23.8	25,338	9.2
Private institutions:								
Universities	667,615	6.1	32,745	14.9	669,713	7.9	52,889	19.3
4-year colleges	1,519,774	13.9	37,952	17.3	1,302,709	15.3	42,225	15.4
2-year colleges	147,532	1.4	3,174	1.4	120,531	1.4	2,806	1.0
Totals	10,901,676	100.0	219,750	100.0	8,500,889	100.0	273,981	99.9

TABLE 23 Opening Fall Enrollments and Full-Time Equivalents by Institutional Type and Control

Control and Type of Institution	1982							
	Opening Fall Enrollments				Full-Time Equivalents			
	Domestic Students		Foreign Students		Domestic Students		Foreign Students	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Public institutions:								
Universities	2,085,510	17.0	86,792	26.1	2,051,175	22.5	150,416	35.6
4-year colleges	2,977,256	24.3	75,262	22.7	2,422,576	26.6	89,124	21.1
2-year colleges	4,480,136	36.6	57,289	17.2	2,271,028	24.9	35,231	8.3
Private institutions:								
Universities	686,891	5.6	44,297	13.3	689,618	7.6	72,606	17.2
4-year colleges	1,760,394	14.4	64,252	19.3	1,479,153	16.2	71,808	17.0
2-year colleges	266,183	2.2	4,258	1.3	209,458	2.3	3,713	.9
Totals	12,256,370	100.1*	332,150	99.9*	9,123,008	100.1*	422,898	100.1*

* Not equal to 100% due to rounding error.

TABLE 24 Per Cent Change in Opening Fall Enrollments and Full-Time Equivalent Counts

Control and Type of Institution	Opening Fall Enrollments		Full-Time Equivalents	
	Domestic Students	Foreign Students	Domestic Students	Foreign Students
Public institutions:				
Universities	2.0%	47.4%	1.0%	55.7%
4-year colleges	6.5%	57.6%	2.9%	64.7%
2-year colleges	20.2%	46.0%	12.2%	39.0%
Private institutions:				
Universities	2.9%	35.3%	3.0%	37.3%
4-year colleges	15.8%	69.3%	13.5%	70.1%
2-year colleges	80.4%	34.2%	73.8%	32.3%
Total change	12.4%	51.1%	7.3%	54.4%

to the courses of study available in two-year colleges. Finally, domestic students often use the two-year programs to develop skills and knowledge which would enhance their success in a four-year college or university. Many American students who do not think of themselves as well-prepared for a more rigorous four-year program use the two-year school as a skill development ground. Foreign students, by contrast, may be subjected to a more stringent selection process in their home countries and may, therefore, not need the preparation offered by the two-year programs. The possible exception to this would be in the area of English proficiency. Yet most four-year institutions offer special English classes to foreign students, so there is no need to develop these skills in a two-year institution.

Ironically, at a time when American colleges and universities are increasingly admitting new types of domestic students who are pursuing their education in non-traditional ways, international students resemble traditional American students more than many Americans do. Non-resident foreign students in this country are more likely to attend college full-time and to be in graduate school, and less likely to attend a two-year college. They are also more evenly distributed among public and private institutions than are domestic students, who concentrate in public institutions. All of these factors imply that the typical foreign student partakes of a more expensive post-secondary educational experience than does the typical American resident. To the extent that foreign students pay for the costs of their education in the U.S., they may compensate for the shifting characteristics of U.S. students. But if foreign students require subsidization, they are being subsidized to cover higher costs than those incurred by domestic students.

IV.

Student and Institutional Quality

Self-reported increases in the quality of both domestic and foreign undergraduates are difficult to interpret. Both groups of foreign students (resident and non-resident) have high performance expectations compared to domestic students. Foreign students expect to need more remedial work in subjects in which English proficiency is important. Higher proportions of foreign students receive degrees from high-quality institutions; large increases in master's degrees to foreign students are found at all levels of selectivity except the very highest, while at the doctoral level, foreign and domestic students have shifted away from the highest level, with foreign students shifting more.

By combining the CIRP and the HEGIS data, we can establish indices of quality (CIRP) for domestic and foreign students, and ascertain the degrees awarded to foreign and domestic students by institutions with varying levels of selectivity (HEGIS). The student quality discussion will also highlight some of the special needs of the international freshmen population in relation to those of the general freshmen population (CIRP). These comparisons will help American institutions of higher education to anticipate and meet the needs of international students and illuminate further the differences in costs of educating foreign and domestic students. However, the main thrust of this chapter is to look at the fit between the quality of students, domestic and foreign, who are entering American schools and the quality of institutions from which individuals in these groups are receiving degrees.

Section A: Student Quality Indicators

This section will examine the quality indices that describe international and domestic students. The student quality indicators have been derived from the students' reports of high school grade point average; how first-time, full-time students expect to perform academically; what extra services they expect to need; and what kinds of extra-curricular activities they plan to engage in.

Before discussing foreign students' expectations of performance in college, we look at their academic background in relation to the national norms. The level of achievement in high school has a strong effect on how students expect to perform in college.

The CIRP data enable us to compare the academic background of foreign students with the national norms.[1] As a part of the survey, students report their average high school grades. Table 25 presents the survey results for 1972 and 1982, as well as the per cent change between these two years. Generally, one observes marked increases in the number of "A" or "A+" averages, probably due to grade inflation. Thus, year-to-year comparisons do not reflect changes in the number of highly able students. Moreover, different standards in different countries could make grade comparisons within a single year suspect as well. However, comparisons between foreign and domestic students in a particular year are instructive.

While an increase is seen in the national norms as well as in the reported grades of the foreign student groups, the percentage change seen in the foreign groups exceeds the national norm figures by a wide margin. The percentage of "A" or "A+" averages reported increased by 43.3 per cent in the national norms: from 6.7 per cent of the total freshmen population in 1972 to 9.6 per cent of the total freshmen population in 1982. For non-resident aliens, the percentage of A/A+ averages increased by 112.8 per cent, from 8.6 per cent in 1972 to 18.3 per cent in 1982. Finally, 5.4 per cent of the resident foreign freshmen reported an A/A+ grade point average in 1972, compared with 16.4 per cent of this population in 1982. At the same time, there was a reduction in the number of freshmen reporting high school grade point averages of "C+" or less. This trend was seen in the national norms and for both groups of foreign students, except for a slight increase in the percentage of non-resident aliens who reported an unbelievable "D" average for their high school grades. It appears that those who come from abroad to study are higher achievers than the "typical" domestic students, though the caveats expressed above should be kept in mind.

If we may cautiously interpret the trends seen in Table 25, one possible explanation for the higher average high school grades is that brighter students entered college in 1982. Alternatively, it is possible that foreign and domestic students alike became more attuned to the importance of high school grades and reported higher grades than they really received. Yet another possibility lies in the numerous accusations that elementary and secondary level grades have been inflated and do not reflect increased academic achievement on the part of the entering freshmen. Finally, there remains the problem of the comparability of grades earned in foreign secondary schools and American high schools. Since secondary school systems vary greatly from country to country, it is highly questionable whether these grade reports can be realistically compared.

Nevertheless, when one looks at the changes from 1972 to 1982 for foreign and domestic students separately, it is clear that more domestic students have "A's" in 1982 than in 1972, but that this growth is even more pronounced abroad. This may mean, then, either that grade inflation has been greater abroad or that more top students are coming to the United States for undergraduate study.

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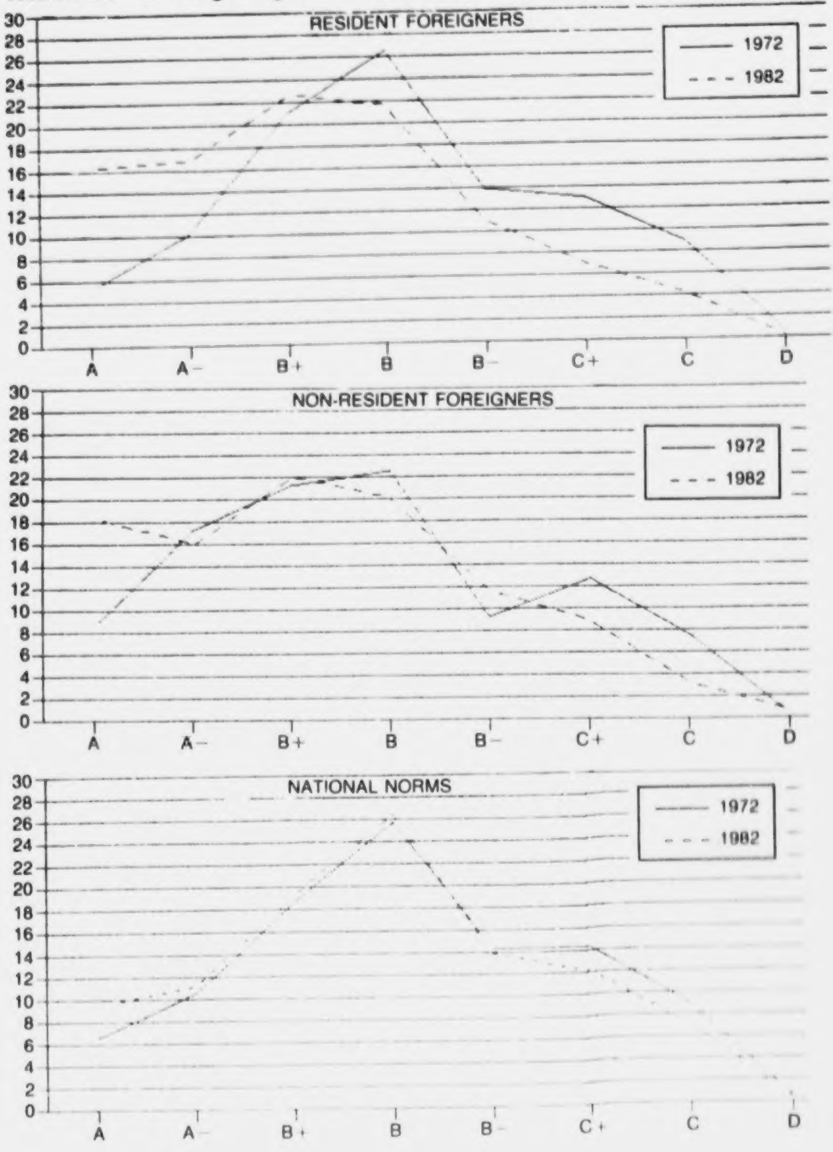
[1] As mentioned in the Introduction, the self-report format used by the CIRP instrument may result in an inflated view of student qualifications. Nevertheless, the comparisons between foreign and domestic students still shed light on the relative standing of these groups.

TABLE 25 Average High School Grades for Entering Freshmen



A second indicator of student quality can be obtained by looking at how well students think they will do in college. Presumably, the higher quality students will enter expecting success, while the less able students may enter with doubts about their ability to perform well.

The students' performance expectations can be found in two groups of survey responses, those that indicate (1) expected success and (2) those that show anticipated difficulties. Students who expect to graduate with honors, be elected to an academic honor society, obtain their bachelor's degree, and be satisfied with the college they have chosen, can be characterized as those who generally expect to be successful. The success indicators can also be viewed as identifying characteristics of higher quality students. Students who anticipate difficulties with college work are those who consider the chances to be "very good" that they will fail a course, need extra time to complete their degree, need remedial work, or drop out either temporarily or permanently. These are indicators of students who are probably less qualified.

Generally, the performance expectations of the resident and non-resident alien freshmen are higher than those of the total freshman population (Tables 26 and 27). This finding falls in line with the reports of higher high school grade averages among the foreign populations. In 1982, 11.8 per cent of all freshmen expected to graduate with honors; compared with 17.1 per cent of resident alien freshmen and 18.2 per cent of non-resident foreigners who were first-time, full-time students and anticipated receiving this honor. Also in 1982, a similar pattern was obtained for those who considered the chance "very good" that they would be elected to an academic honor society. The incidence of this response among all freshmen was 6.7 per cent; among the non-resident international freshmen it was slightly higher at 7.4 per cent; and among the resident foreign population it was most frequent at 11.4 per cent. A far greater proportion of each group expected to earn a "B" average or better for their college work. Here again, the proportion of students seeing this outcome as highly likely was greater for the foreign populations than in the national norms. Of the total freshmen population, 41.3 per cent planned to maintain a "B" average or better in 1982. In this same year, 43.0 per cent of the non-resident foreigners and 47.9 per cent of the resident foreign freshmen expected high grades in college.

A much higher proportion of the foreign freshmen expected to receive a bachelor's degree. The 1982 national norms indicated that 65.0 per cent expected to get a baccalaureate degree. In this same year, the survey found that 77.0 per cent of the non-resident international freshmen and 78.2 per cent of the resident foreign-born students had this expectation. Finally, the expectation of satisfaction with the selected college was virtually identical for the foreign students and the general freshmen population in 1982. About 55 per cent of each group indicated that it was likely that they would be satisfied with their college selection. A general look at the 1972 figures for these success indicators shows that the expectations of foreign students have long been higher than those of "typical" domestic freshmen, but that the gap between the foreign and domestic responses has narrowed with a rise in the expectation of success among U.S. citizens.

TABLE 26 Future Expectations: A Comparison of Foreign Students with the National Norms

	1972			1982		
Chances Considered Very Good	Non-Resident Foreign (%)	Resident Foreign (%)	National Norms (%)	Non-Resident Foreign (%)	Resident Foreign (%)	National Norms (%)
Graduate with honors	19.5	15.6	7.8	18.2	17.1	11.8
Be elected to academic honor society	9.7	7.2	4.5	7.4	11.4	6.7
Make at least a "B" average	41.1	40.8	32.7	43.0	47.9	41.3
Get bachelor's degree	68.8	58.8	60.3	77.0	78.2	65.0
Be satisfied with this college	65.8	54.6	59.4	55.1	56.0	55.4
Fail one or more courses	1.4	2.2	2.6	.4	2.1	1.4
Need extra time for degree	11.2	8.2	4.8	4.3	5.5	5.2
Drop out temporarily	.7	2.2	1.8	1.7	1.4	1.1
Drop out permanently	.9	2.2	1.1	2.2	.9	.8

TABLE 27 Percent Change in Future Expectations

	Per Cent Change from 1972–1982		
Chances Considered Very Good	Non-Resident Foreign	Resident Foreign	National Norms
Graduate with honors	−6.7	8.2	51.3
Be elected to academic honor society	−23.7	58.3	48.9
Make at least a "B" average	4.6	17.4	26.3
Get bachelor's degree	11.9	33.0	7.8
Be satisfied with this college	−16.3	2.6	−6.7
Fail one or more courses	−71.4	−4.5	−46.2
Need extra time for degree	−61.6	−32.9	8.3
Drop out temporarily	142.9	−36.4	−38.9
Drop out permanently	144.4	−59.1	−27.3

There is a very low incidence of students who anticipate difficulties in their college work. This is true of the general population of incoming freshmen as well as for the resident and non-resident international students. According to the 1982 national norms, 1.4 per cent of all freshmen thought the chances were very good that they would fail one or more courses. In the resident foreign group, 2.1 per cent anticipated failing at least one course; however, in the non-resident international group, the percentage expecting some failure was only 0.4 per cent. This is understandable when one considers the extra penalties experienced by the non-resident international students when their degrees are not finished in a timely manner or when their progress is hampered by failing courses.

Most foreign students who are sent to study in an American college are selected by their families or a sponsoring agency based on characteristics which indicate a strong likelihood that these students will be successful in their college work. For the non-residents, the added travel and living expenses, to say nothing of cultural / social adjustment efforts, result in a higher cost of failure. Therefore, it is reasonable that fewer of these students would anticipate problems related to their college coursework.

The non-resident foreign students do have a slightly higher rate of response to the possibility of dropping out, either temporarily or permanently. In the 1982 national norms, 1.1 per cent of all entering freshmen anticipated the need to drop out temporarily and 0.8 per cent thought it likely that they would have to drop out permanently; in the resident alien population, 1.4 per cent thought they might drop out temporarily and 0.9 per cent that they might have to drop out permanently. In contrast, among the non-resident foreign freshmen, 1.7 per cent thought they might have to drop out temporarily and 2.2 per cent thought it likely they might have to drop out permanently. Foreign students may realize that over the four year period generally needed to obtain a bachelor's degree, changes in financial, political, or family situations could result in their having to make an untimely return to the home country. Because of the great travel distances which are often involved, these unforeseen problems could result in the student's dropping out. Students who reside permanently in the United States are more likely to be able to handle financial and family difficulties without dropping out.

For all three groups, the expectation of difficulties clearly became less frequent in the more recent, 1982 survey. This is particularly true of students who reported it to be highly likely that they would need extra time to complete their degree. In 1972, the national norms indicated that 4.8 per cent of all students had this expectation. In that same year, 8.2 per cent of the resident foreign freshmen and 11.2 per cent of the non-resident international students saw this as a likely possibility. By 1982, the percentage of the total freshmen who thought they would need more than four years to complete their degree rose slightly to 5.2 per cent, while the figures for the two groups of foreign students dropped. In 1982, only 5.5 per cent of the resident aliens felt they would need additional time and only 4.3 per cent of the non-resident foreign freshmen considered this a likely possibility.

Another way in which the entering students anticipated academic difficulties in college work was by indicating the areas in which they might need special help or remedial work. The results of freshmen responses for 1972 and 1982, as well as the percentage change in each category, are presented in Table 28. The percentage change table shows clearly that the perceived need for remedial work decreased dramatically in all subjects for domestic and foreign students alike. Additionally, the negative change was more pronounced in the national norms than in either of the groups of foreign-born freshmen. With few exceptions, a higher than average percentage of foreign students, resident or non-resident, thought they would need special help in English, reading, social studies, science, and foreign language in 1982.

In 1972, the percentage of foreign students who anticipated needing extra help in mathematics (36.1 per cent of the resident foreign freshmen and only 27.5 per cent of the non-resident foreign freshmen) was lower than the percentage of the total population who thought they would need remedial work (38.6 per cent). In 1982, the need for special help in mathematics was anticipated by only 17.6 per cent of the non-resident international freshmen, compared to 23.3 per cent of the resident aliens and 22.1 per cent of all entering freshmen. These findings seem reasonable, because mathematics uses universal notation and is less dependent on an in-depth knowledge of English. In the area of foreign language, the need for remedial work was higher in the national norms than for foreign students in 1972, but by 1982, a larger percentage of foreign students expressed a need for extra help in this area. Finally, in 1972, 22.4 per cent of the non-resident freshmen and 20.4 per cent of the resident aliens thought they would need extra help in science, compared with 22.5 per cent in the overall freshman population. By 1982, there was a considerable change in these percentages: only 9.3 percent of the entering students felt they would need extra help in science, compared with 11.3 per cent of the non-resident and 14.3 per cent of the resident foreign freshmen. In spite of these few exceptions, in 1982, foreign students indicated a greater need for remedial work than did the total, predominantly domestic, freshman population. The fact that this need is less pronounced in mathematics suggests that remedial problems may relate primarily to English language problems, rather than difficulties with concepts.

In addition to the need for special help in subject areas, the incoming freshmen indicated whether they considered the chances "very good" that they would seek vocational or individual counseling (Table 29). Between 1972 and 1982, the proportions of freshmen who expected to seek these services dropped both in the national norms and within the foreign population, for both residents and non-residents alike. In 1982, 5.6 per cent of all incoming freshmen thought it was highly likely that they would seek vocational counseling. This figure can be compared with 7.8 per cent of the resident foreign population and 7.9 per cent of the non-resident international freshmen population in that year. A similar picture existed that year with regard to first-time, full-time students who anticipated seeking individual counseling during their college years. In the 1982 national norms, only 3.6 per cent of the total freshman population expected to seek this type of help, compared with 5.4 per cent of the resident foreign-born freshmen and 7.9 per cent of the non-resident foreign freshmen. These figures seem reasonable, since freshmen from abroad would tend to have more questions about how the higher education system works. Nevertheless, it is interesting to note that the anticipated demand for these services has declined in the foreign populations, particularly with reference to vocational counseling; in the non-resident international population, there was a drop from 10.0 per cent in 1972, to 7.3 per cent in 1982, a decline of 27.0 per cent; among resident foreign freshmen, the proportion fell by 41.8 per cent, from 13.4 per cent in 1972 to 7.8 per cent in 1982. During this same time period, the need for individual counseling dropped by only 3.7 per cent in the non-resident international freshmen population and by a substantial 36.5 per cent for the resident aliens.

The somewhat greater need for remediation and counseling by foreign students implies that the admission of foreigners may entail correspondingly greater costs to institutions than would the admission of domestic students. Since remediation and counseling rarely are paid for separately, students who utilize these services are more expensive to educate than are others.

Another area explored in the CIRP questionnaire relates to the freshmen's expected involvement in extra-curricular activities during the college years. Generally, in the higher education literature, students' involvement in extra-curricular activities during the undergraduate years has been positively associated with academic success. Thus good students would be more likely to anticipate involvement in extra-curricular activities.

Table 30 presents the percentages of each group that considered the chances to be "very good" that they would be elected to student office or would join a fraternity, sorority, or other type of club. In 1982, the figures for the two groups of foreign students are quite similar to each other as well as to the national norms. While 2.8 per cent of all incoming freshmen

TABLE 28 Need for Remedial Work for Entering Freshman

	1972			1982			Per Cent Change		
Areas in Which Remedial Work is Needed	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
English	44.6%	39.9%	19.7%	29.6%	23.3%	11.3%	−33.6%	−41.6%	−42.6%
Reading	19.6%	19.5%	11.3%	13.4%	11.6%	4.4%	−31.6%	−40.5%	−61.1%
Mathematics	27.5%	36.1%	38.6%	17.6%	23.3%	22.1%	−36.0%	−35.5%	−42.7%
Social Studies	11.1%	8.2%	5.2%	7.8%	7.2%	2.6%	−29.7%	−12.2%	−50.0%
Science	22.4%	20.4%	22.5%	11.3%	14.3%	9.3%	−49.6%	−29.9%	−58.7%
Foreign Language	18.2%	12.8%	22.0%	13.6%	9.8%	7.5%	−25.3%	−23.4%	−65.9%

TABLE 29 Future Expections: A Comparison of Foreign Students With the National Norms

	1972			1982			Per Cent Change		
Chances Considered Very Good	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**	**Non-Resident Foreign**	**Resident Foreign**	**National Norms**
Seek vocational counseling	10.0%	13.4%	13.0%	7.3%	7.8%	5.6%	−27.0%	−41.8%	−56.9%
Seek individual counseling	8.2%	8.5%	6.2%	7.9%	5.4%	3.6%	−3.7%	−36.5%	−41.9%
Be elected to student office	5.2%	3.9%	1.6%	2.9%	3.7%	2.8%	−44.2%	−5.1%	75.0%
Join fraternity / sorority / club	23.8%	18.8%	17.3%	14.5%	17.6%	16.1%	−39.1%	−6.4%	−6.9%

TABLE 30 Bachelor's Degrees Awarded by Institutional Selectivity, Domestic and Foreign Students for 1976 and 1982

	1976				1982			
	Domestic Students		Foreign Students		Domestic Students		Foreign Students	
Selectivity Level**	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Low	132,683	15.0	1,849	13.2	125,376	14.2	3,609	16.8
Medium	617,286	69.5	9,593	68.6	629,839	71.3	15,101	70.3
High	138,119	15.6	2,535	18.2	129,035	14.5	2,768	12.9
Total	888,088	100.1	13,977	100.0	884,250	100.0	21,478	100.0

** AVERAGE SAT SCORES FOR ENTERING STUDENTS

LOW = 849 or Less
MEDIUM = 850 to 1074
HIGH = 1075 or More

expected to be elected to student office, 3.7 per cent of the entering resident foreign-born population and 2.9 per cent of the non-resident foreign population held this expectation. Also in 1982, 16.1 per cent of the total first-time, full-time student population planned to join a fraternal organization or a club, compared to 17.6 per cent of the resident alien population and 14.5 per cent of the non-resident alien population. It should be noted that the interest in joining these types of organizations declined between 1972 and 1982, in the national norms and within the groups of foreign students.

Section B: Degrees Awarded by Institutional Selectivity

In the preceding discussion of student quality, foreign undergraduate students, particularly the non-resident international students, demonstrated consistently higher indicators of quality than did their American counterparts in the national norms. The exception was a greater need for remediation expressed by the international students. These data are based on questioning students at the beginning of their postsecondary experience at American colleges and universities. Now we turn to the end of the story, to see if the patterns suggested by the freshmen survey are borne out in the quality of degrees eventually obtained by foreign and domestic students. One would expect to find more degrees awarded to international students by the most selective institutions, if this group of students was better qualified. However, when, all the proxies for student quality are combined, there does not seem to be a significant difference between the two groups in the quality of degrees they received.

We now describe the similarities and differences between American and foreign students within the context of institutional selectivity, using information from the HEGIS data. Institutional selectivity is a proxy measure for institutional quality. This measure divides institutions of higher education according to the average score of entering students on the Scholastic Aptitude Test (SAT). The figures presented here indicate the bachelor's degrees, master's degrees, and doctoral degrees earned by foreign and domestic students, divided into the levels of institutional selectivity. Although average SAT scores are a proxy for quality of undergraduate programs, there is a high correlation between quality of undergraduate and graduate programs. Thus, we use this measure for all degree levels. For the purpose of this study, a low, medium, and high level of selectivity have been defined as follows: schools have low selectivity when the average SAT score is less than 850; the middle range is between average scores of 850 and 1074; and, the upper range is an average of 1075 or more.

Bachelor's Degrees

The 1976 data indicate that the percentage of all bachelor's degrees awarded at institutions with a low level of selectivity was higher for domestic students than for foreign students. Fifteen per cent of all baccalaureate degrees to American residents came from lower quality institutions, while only 13.2 per cent of all bachelor's degrees to non-resident foreign students were awarded by institutions of low selectivity (Table 30).

By 1982, this picture had changed somewhat. The percentage of low quality bachelor's degrees awarded to domestic students dropped to 14.2 per cent; for international students, the proportion of undergraduate degrees from low selectivity institutions increased to 16.8 per cent. The absolute number of domestic students obtaining degrees from low selectivity institutions fell by over 7,000, whereas the number of foreign students receiving such degrees rose by almost 1,800.

A comparison of bachelor's degrees awarded by schools in the middle range of selectivity shows greater similarity between the groups. In 1976, 68.6 per cent of the foreign students' bachelor's degrees and 69.5 per cent of the domestic undergraduate degrees came from institutions falling within the middle range of quality. By 1982, there was a slight increase in the proportion of each group that received a bachelor's degree from institutions in the middle quality range: 71.3 per cent of all undergraduate degrees to domestic students came from institutions in this middle range; for foreign students the proportion was slightly lower at 70.3 per cent. The number of domestic students receiving degrees from middle selectivity institutions increased by more than 12,000, while the number of foreign students obtaining such degrees rose by just under 6,000.

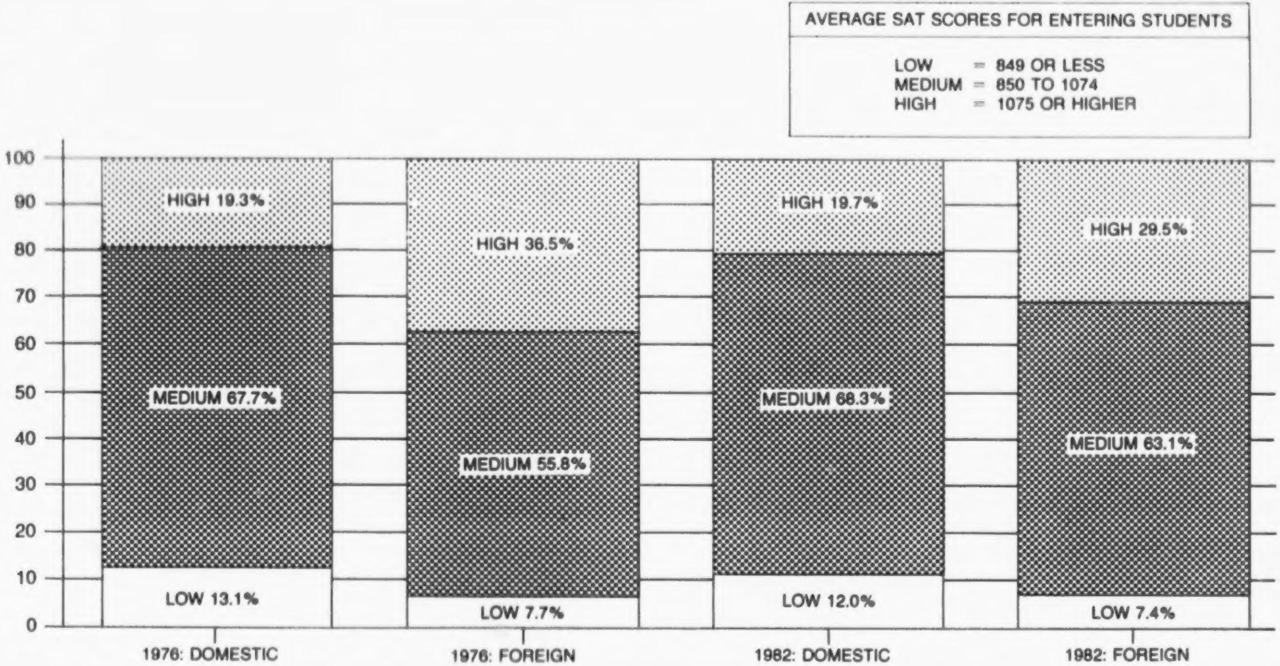
The percentages of bachelor's degrees awarded by the highest quality schools reveal that some interesting changes took place between 1976 and 1982. In 1976, 15.6 per cent of the domestic bachelor's degrees came from top institutions (138,119). For foreign students, the proportion of degrees from highly selective institutions was higher at 18.2 per cent (2,535). By 1982, the percentage of all bachelor's degrees coming from the top quality institutions had dropped for both foreign and domestic students, with the greatest decrease in the foreign student category: 14.5 per cent of the domestic degrees (129,035) and 12.9 per cent (2,768) of the degrees to international students were conferred by high selectivity institutions. In absolute terms, there was a small shift away from the top quality institutions for domestic students, while slightly more foreign students went to highly selective institutions in 1982.

The HEGIS data on the differences (or lack of differences) between foreign and domestic students in the quality of undergraduate degrees are consistent with CIRP data indicating student quality.

Master's Degrees

A comparison of the figures for domestic and foreign students indicates differences in the levels of quality of master's degrees awarded to each group. The 1976 HEGIS data indicate that a much larger per cent of domestic students received master's degrees from institutions in the lowest level of selectivity. Thirteen and one-tenth per cent (36,595) of all master's degrees awarded to domestic students in that year came from institutions whose entering students averaged less than 850 points on the SAT. For non-resident foreign students in the same year, only 7.7 per cent (1,139) of the

TABLE 31 Masters Degrees Awarded by Institutional Selectivity Domestic and Foreign Students for 1976 and 1982



total master's degrees were awarded by these lower quality institutions. Schools in the middle range of selectivity awarded 67.7 per cent (188,944) of all master's degrees to American residents and 55.8 per cent (8,231) of all master's degrees to foreign students. Again, a smaller proportion of the all degrees to international students came from schools in the middle range of selectivity. Thirty-six and five-tenths per cent (5,380) of the foreign students' master's degrees came from institutions with the highest selectivity. Only 19.3 per cent (53,893) of all master's degrees awarded to domestic students came from the high quality colleges and universities. Thus, as a group, the foreign students received a larger percentage of quality degrees in 1976 (Table 31).

In 1982, the shift in foreign students' master's degrees from the high selectivity schools to the middle selectivity schools reduced the group differences at the middle level. However, substantial differences remained at the lower and upper levels. Only 7.4 per cent (1,532) of the master's degrees to non-resident foreigners came from the low quality schools, while 12 per cent (30,615) of all domestic master's degrees came from these schools. At the highest level, almost 30 per cent (6,094) of all master's degrees to international students came from high quality institutions, while only about 20 per cent (50,052) of the American resident students received high quality master's degrees.

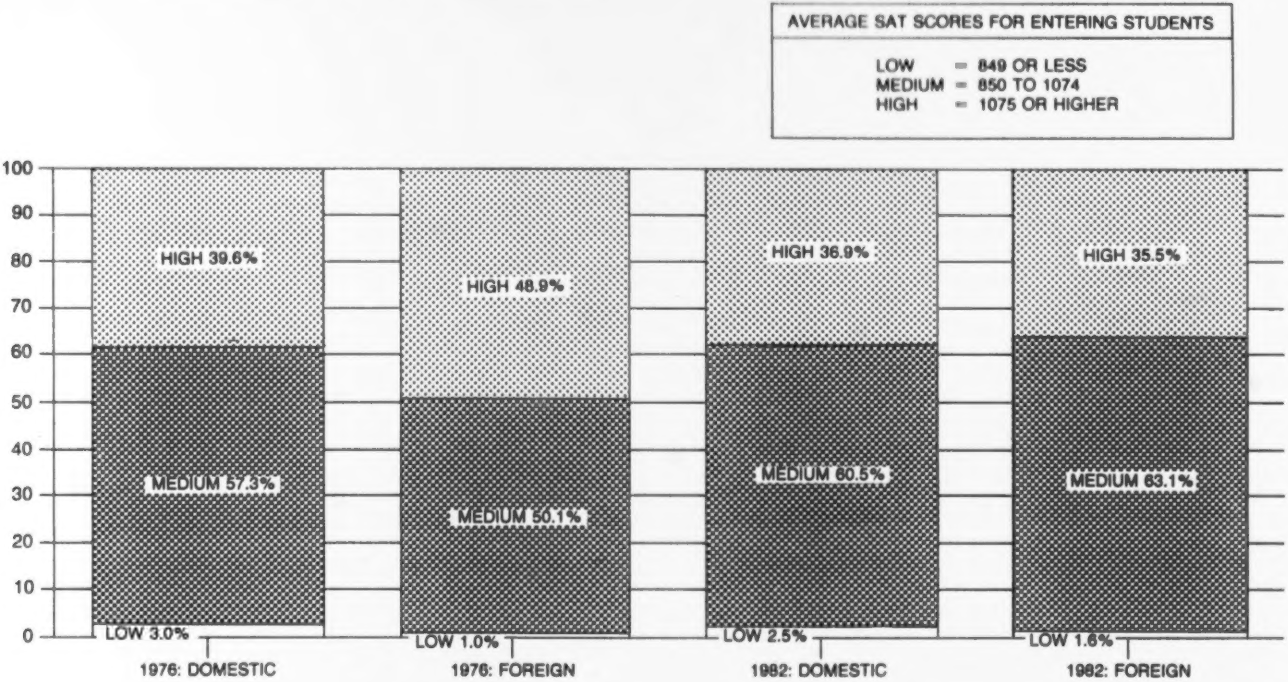
It should be noted that the number of master's degrees awarded to foreigners grew in all three selectivity categories. The greatest absolute growth occurred in medium level selectivity institutions, which resulted in a drop in the share of degrees from high selectivity schools.

The fact that a higher proportion of the foreign student population received degrees from the high quality institutions is probably an artifact of the segment of the world student population which finds its way to American universities. It is probable that the foreign students selected by their families or by sponsoring agencies for study in the United States are among the most qualified students in their home countries. The American resident student population includes many excellent students and also some who are less academically qualified. It is this difference in the entering population which probably accounts for the difference in the quality of degrees conferred on the two groups. Looking at the overall per cent changes in numbers of degrees awarded at each level of selectivity, large increases in numbers of master's degrees to foreign students are found at all levels except the very highest. The profile is different for the domestic group, where the number of degrees decreased at each selectivity level and the shares in each group remained virtually constant.

Doctoral Degrees

At the doctoral degree level, a comparison of foreign and domestic degree recipients in 1976 and 1982 shows a move towards greater similarity between the two groups. Very few doctorates are awarded by low selectivity universities (under three per cent for each group in both years). In 1982, there was a similar distribution of both groups among levels of institutional

TABLE 32 Doctorate Degrees Awarded by Institutional Selectivity Domestic and Foreign Students for 1976 and 1982



selectivity. Degrees from low selectivity universities accounted for 2.5 per cent (650) of the domestic Ph.D.'s and 1.6 per cent (60) of the doctor's degrees awarded to foreign students. Institutions in the middle range of selectivity awarded 60.5 per cent (15,439) of the degrees to American residents and 63.1 per cent (2,495) to foreign doctorate recipients. Finally, 36.9 per cent (9,443) of the doctoral degrees to domestic students and 35.5 per cent (1,405) of the degrees to foreigners came from top quality institutions (Table 32).

This similarity was not evident in 1976, when considerable differences existed in the quality of the institutions from which each group was receiving doctoral degrees. In 1976, doctoral degrees to foreign candidates were evenly distributed, with about 50 per cent (1,909) coming from middle-range selectivity schools and about 50 per cent (1,866) coming from schools having the highest level of selectivity. Only one per cent (41) of the degrees awarded to international students came from low quality institutions. However, about 40 per cent (10,654) of the doctorates awarded to domestic candidates came from top schools and 57.3 per cent (15,407) came from universities in the middle range of selectivity. The remaining three per cent (807) of the degrees were awarded by schools in the lowest range of selectivity.

Thus, we see that there have been small shifts in the quality of institutions awarding doctoral degrees to both foreign and domestic students. For resident candidates, the move has been towards the middle range of selectivity. For international students, there has been a significant shift from top quality degrees to degrees from schools in the middle level of selectivity. Between 1976 and 1982, there was a drop in domestic doctorates awarded (of about 1,300) and an increase in foreign doctorates (of almost 150).

This review of patterns of degrees awarded to foreign and domestic students by degree level and institutional selectivity does not reveal major differences between the two groups of students. Since we have not identified major quality differences between the two groups, our results are as might have been expected. The analysis of the institutional choices made by the two groups contributes to the understanding of the role played by foreign students in U.S. institutions of higher education.

V.

Students' Aspirations and Types of Degrees

Foreign students increasingly aspire to go beyond the bachelor's level. At different degree levels, foreign students play different roles in different disciplines in compensating for declines in degrees awarded to domestic students or adding to the numbers of domestic students seeking degrees. Competition is notable at the bachelor's and master's levels in computer science, while compensation is especially conspicuous at the master's and doctoral levels in engineering.

This section connects the data related to career goals, probable majors, and degree aspirations of entering freshmen—all freshmen, resident foreigners, and non-resident foreigners—(CIRP) with the record of actual degrees awarded to domestic and international students (HEGIS).

Section A: Life and Career Goals

Table 33 provides information from the CIRP survey concerning the career aspirations of entering freshmen in 1972 and 1982. The categories "business," "other," and "undecided" were among the top five selections for both years, for foreign students as well as all those in the national norms. By 1982, engineering had become one of the most selected careers in the national norms and for both resident and non-resident foreign students, while in 1976, engineering was ranked in the top five selections for foreign students, but not in the national norms. Other fields of career interest to foreign freshmen were medicine and art. A notable decline of interest occurred in teaching at all levels, from college to primary, for both foreign and domestic students.

In another part of the CIRP survey, students consider their chances of finding a job in their own field (Table 34). From the responses, we see that the proportion of students who expected to find a job in their own field increased for all groups. In 1972, only 52.4 per cent of all freshmen expected to get a job in their own field; by 1982, this percentage had increased to 69.6 per cent, an increase of 32.8 per cent. In the group of non-resident international students, 56.0 per cent expected to find work in their field in

TABLE 33 Probable Career of Entering Freshmen

	1972						1982						Per Cent Change		
Student's Probable Career	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	Non-Res. Foreign (%)	Resident Foreign (%)	National Norms (%)
Other	1	22.6	1	36.4	1	32.4	2	19.7	1	26.7	1	33.6	−12.8	−26.6	3.7
Engineer	2	21.2	2	11.0	9	5.3	3	19.1	2	18.3	3	12.0	−9.9	66.4	126.4
Businessman	3	19.4	3	10.7	3	10.5	1	27.1	3	16.2	2	20.2	39.7	51.4	92.4
Undecided	4	8.3	5	7.9	2	13.9	4	9.9	5	8.3	4	9.5	19.3	5.1	−31.7
Secondary Education	5	6.3	7	4.4	5	6.5	9	2.6	9	1.1	10	1.9	−58.7	−75.0	−70.8
Doctor	6	5.7	4	9.4	8	5.5	5	7.0	4	15.1	7	4.3	22.8	60.6	−21.8
Health Professional	7	4.2	6	6.5	4	7.3	7	4.1	7	3.7	6	5.4	−2.4	−43.1	−26.0
Primary Education	8	3.2	9	1.9	7	5.6	10	1.7	10	.9	8	3.0	−46.9	−52.6	−46.4
Research Scientist	9	3.1	11	1.7	11	2.3	8	2.8	8	2.7	11	1.5	−9.7	58.8	−34.8
Artist	10	2.2	8	3.7	5	6.5	6	4.5	6	5.4	5	6.3	104.5	45.9	−3.1
College Teacher	11	2.0	10	1.8	12	.6	11	.8	12	.6	13	.2	−60.0	−66.7	−66.7
Clergyman	12	1.0	12	.4	12	.6	13	0.0	13	.3	12	.3	−100.0	−25.0	−50.0
Farmer/Forester	13	.8	13	.5	10	2.9	11	.8	11	.8	9	2.1	0.0	60.0	−27.6

TABLE 34 *Career Expectations*

Chances Considered Very Good To Find Job In Own Field	1972	1982	Percent Change
Non-Resident foreigner	56.0	62.8	12.1
Resident foreigner	57.2	67.3	17.7
National norms	52.4	69.6	32.8

1972, and by 1982, this figure had risen to 62.8 per cent. The proportion of resident foreign-born freshmen expecting to find jobs in their own fields increased from 57.2 per cent in 1972 to 67.3 per cent in 1982. While many students were not able to indicate a career choice when questioned, foreign students do usually come to the United States to study in areas of need back home. Thus, they are able to feel confident about finding a related job after completing their education. Although U.S. students are less likely to consider the status of the labor market in choosing a career, they too increasingly were confident about their chances of finding a job in their own field.

As discussed earlier, the CIRP questionnaire asks the incoming freshmen to assess the importance of various goal statements. One category of goals explored pertains to the future careers of incoming freshmen. Table 35 presents the percentages of first-time, full-time freshmen who identified various career goals as "very important" or "essential."

In 1972, there were considerable differences in the responses of the foreign students and those of the total population. In this earlier year, a greater proportion of foreign freshmen wanted to obtain recognition from their colleagues, to have administrative responsibility, to make theoretical contributions to science, and to be successful in their own businesses. In 1972, the desire to become an authority in one's own field was valued by similar proportions of all students.

The foreign students more closely resembled the national norms by 1982. The differences in 1982 resulted from the fact that foreign students were a good deal above the national norm figures in their desire to make theoretical contributions to science and to be successful in their own business, and slightly above with regard to writing original works and creating artistic works. However, the figures for both groups of foreign freshmen nearly matched the national norms with regard to wanting to become an authority in one's own field, obtaining recognition from colleagues, and having administrative responsibility.

It is important to point out that such goals as making a theoretical contribution are more appropriate to students majoring in the sciences or other theoretical disciplines, in which the foreign students have greater percentages of enrollees. For example, it would be less likely for the business major to expect to make theoretical contributions to science or to create artistic works. Therefore, these figures may only reflect differences in school and career interests of the foreign freshmen.

TABLE 35 Career Goals: A Comparison of Foreign Students with the National Norms

	1972						1982						Per Cent Change		
Career Goals Considered Very Important or Essential	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	Non-Res. Foreign (%)	Resident Foreign (%)	National Norms (%)
Become authority in own field	1	65.2	1	64.0	1	60.6	1	70.7	1	74.8	1	73.5	8.4	16.9	21.3
Be successful in own business	2	54.7	2	53.9	2	44.7	2	61.6	3	57.3	3	49.7	12.6	6.3	11.2
Obtain recognition from colleagues	3	51.5	3	43.6	3	36.9	3	55.3	2	62.0	2	55.3	7.4	42.2	49.9
Have administrative responsibility	4	46.5	4	33.4	4	24.1	4	40.3	4	41.9	4	40.5	−13.3	25.4	68.0
Make theoretical contrib. to sci.	5	28.3	5	22.8	7	10.6	5	25.9	5	27.7	5	14.2	−8.5	21.5	34.0
Create artistic works	6	19.2	7	11.5	5	17.5	7	15.9	6	15.5	6	12.4	−17.2	34.8	−29.1
Write original works	7	15.6	6	15.5	6	13.9	6	16.2	7	15.0	7	11.6	3.8	−3.2	−16.5

Section B: School Goals

School objectives are indicated by the probable majors (Table 36) and degree aspirations (Table 37) of both resident and non-resident foreign freshmen and the national norms. In 1972, business and "other technical" majors each were selected by 15.5 per cent of the total freshmen population. The next most frequent choice was health professions, which was chosen by 10.6 per cent of the total 1972 population. In third place was fine arts which accounted for 8.8 per cent of the sample. Seven and eight-tenths of the freshmen intended to major in the social sciences and 7.3 per cent expressed an interest in education as a major.

These top choices in 1972 were also popular among both the resident and the non-resident foreign freshmen. Business was selected by 18.8 per cent of the non-resident international freshmen and 13.4 per cent of the resident foreign freshmen. The "other technical" category was chosen by 12.3 per cent of the non-resident foreigners and 16.6 per cent of the resident aliens. The fine arts majors were selected by sizeable proportions of the foreign populations. These majors were chosen by 6.3 per cent of the non-resident foreign students and by 8.5 per cent of the resident foreign freshmen in 1972. The health professions majors, second in the national norms, were the most frequently selected majors among the resident aliens (16.9 per cent). However, only 3.4 per cent of the non-resident international freshmen expressed an interest in this set of majors. Social science majors were selected by 8.9 per cent of the non-resident foreign students, but were not in the five most selected majors for the resident foreign-born group.

One final difference seen in 1972 was that engineering, not in the top six selections in the national norms, was the most frequently selected major for non-resident foreign freshmen (at 23.9 per cent) and was the fourth ranked choice of major among the resident foreign freshmen (11.6 per cent). In the national norms, engineering was selected by only 6.9 per cent of the first-time, full-time freshmen in that year.

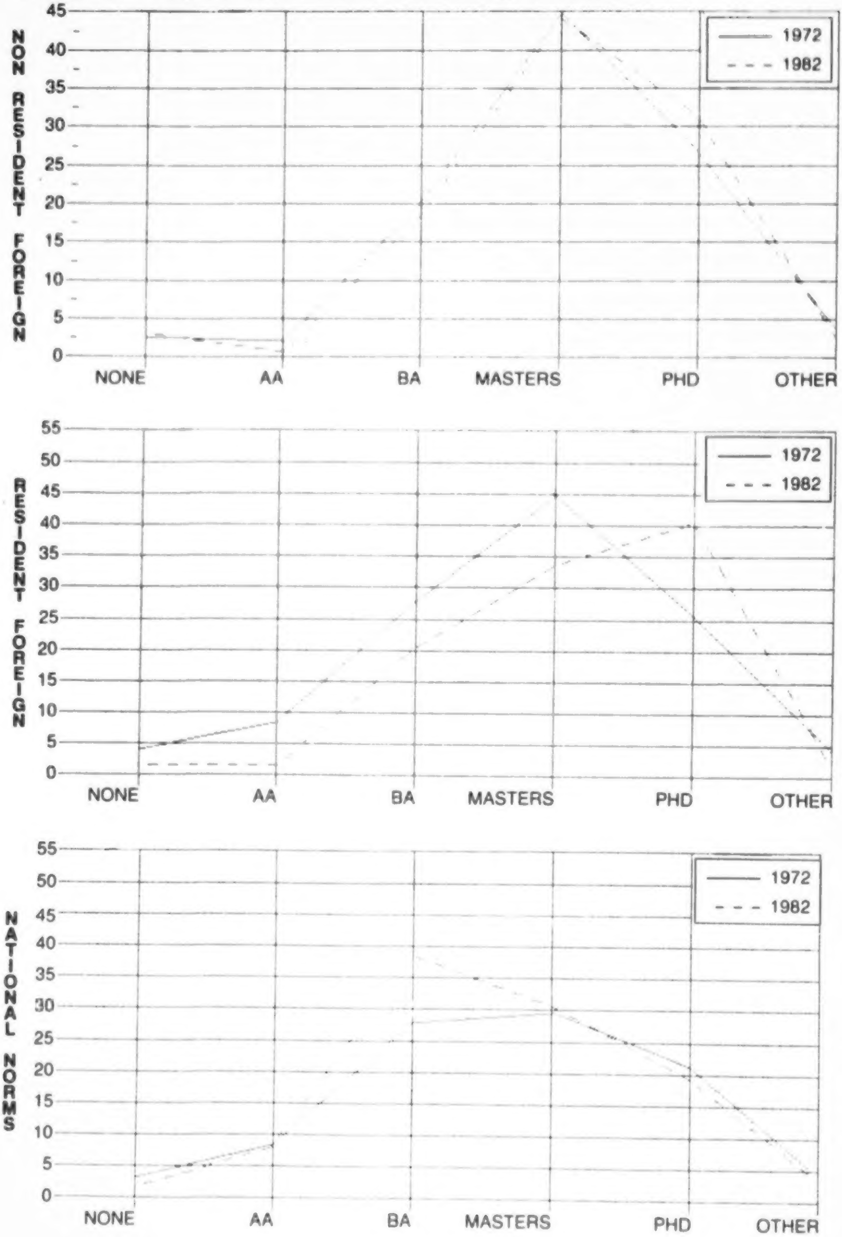
Looking at the national norms in 1982, one can see considerable shifting in the most frequently selected majors. Business was still overall in first place and now by a wide margin, capturing nearly a quarter of all entering freshmen. This figure represents a gain of 56.1 per cent in the frequency of this selection. Interest in engineering as a major grew to 12.6 per cent, a gain of 82.6 per cent over the norms in 1972. Fine arts dropped from the top five selections and health professions and the "other non-technical" categories appeared among the top five choices with 9.2 per cent and 8.4 per cent respectively of the total freshmen population making these selections in 1982. Additionally, the "other technical" majors dropped by 19.4 per cent to capture 12.5 per cent of the total freshman population in 1982.

Three of the top five fields in the national norms were among the most frequently selected majors for the two groups of foreign students in 1982. Business was chosen by 24.4 per cent of the non-resident foreign freshmen, replacing engineering as the most selected major for this group. Among resident aliens, business was the second ranked major, with 17.4 per cent of these freshmen selecting this major in 1982. Engineering was still chosen

TABLE 36 Probable Major of Entering Students

Student's Probable Major	1972						1982						Per Cent Change		
	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	RANK	Non-Res. Foreign (%)	RANK	Resident Foreign (%)	RANK	National Norms (%)	Non-Res. Foreign (%)	Resident Foreign (%)	National Norms (%)
Engineering	1	23.9	4	11.6	7	6.9	2	22.6	1	19.5	2	12.6	−5.4	68.4	82.6
Business	2	18.8	3	13.4	1	15.5	1	24.4	2	17.4	1	24.2	29.8	29.9	56.1
Other technical	3	12.3	2	16.6	1	15.5	8	4.3	5	7.6	3	12.5	−65.0	−54.2	−19.4
Social Science	4	8.9	7	5.8	5	7.8	3	8.0	7	5.3	9	3.9	−10.1	−8.6	−50.0
Fine Arts	5	6.3	5	8.5	4	8.8	5	4.9	9	4.0	8	4.2	−22.2	−52.9	−52.3
Biological Science	6	4.0	9	3.0	9	3.9	6	4.6	4	8.3	10	3.7	15.0	176.7	−5.1
Education	7	3.9	10	2.8	6	7.3	11	3.7	13	1.9	6	6.0	−5.1	−32.1	−17.8
Humanities	8	3.6	6	7.5	11	3.6	12	3.3	11	2.4	13	2.1	−8.3	−68.0	−41.7
Health Professions	9	3.4	1	16.9	3	10.6	4	5.3	3	12.6	4	9.2	55.9	−25.4	−13.2
History/Political Science	10	3.2	11	2.5	9	3.9	9	3.8	12	2.3	12	2.4	18.7	−8.0	−38.5
Math-statistics	11	2.6	12	2.2	14	2.2	15	1.0	15	1.1	16	.6	−61.5	−50.0	−72.7
Physical Science	11	2.6	13	2.0	15	1.9	9	3.8	10	3.8	14	1.9	46.2	90.0	0.0
Other non-technical	13	2.5	15	1.5	13	2.7	7	4.5	6	7.0	5	8.4	80.0	366.7	211.1
English	14	1.7	14	1.6	16	1.6	14	2.4	14	1.4	15	.8	41.2	−12.5	−50.0
Undecided	15	1.6	8	3.5	8	4.6	13	2.6	8	4.2	7	4.6	62.5	20.0	0.0
Agriculture	16	.9	16	.7	12	3.2	16	.8	15	1.1	11	2.6	−11.1	57.1	−18.8

TABLE 37 Degree Aspirations of Entering Students



by great proportions of the foreign freshmen, accounting for 22.6 per cent of the non-resident international students and 19.5 per cent of the resident foreign-born freshmen in 1982. Health professions were also ranked in the top five choices for foreign students and in the national norms for 1982. This field was selected by 12.6 per cent of the resident foreign freshmen and by 5.3 per cent of the non-resident foreign students. One other major area from the 1982 national norms, "other technical," was also among the five most frequently selected majors for resident foreigners (at 7.6 per cent), but was relatively unimportant to the non-resident international group.

In the group of non-resident foreign freshmen in 1982, the majority of students chose business, engineering, or social science majors. The social science major, which attracted eight per cent of the responses of this group, was not among the top ranked choices of either the national norms or the resident aliens. Additionally, fine arts continued to rank in the top five selections with 4.9 per cent of the non-resident aliens making this selection in 1982.

The resident foreign-born freshmen showed a particular interest in biological sciences, which ranked fourth among the choices, with 8.3 per cent of these students making this selection. Finally, the "other technical" majors ranked in the top five choices with 7.6 per cent of the resident foreign-born group choosing this option in 1982.

A major issue regarding foreign students is whether their enrollments serve to replace American students in fields where American student interest is low, or whether they add pressure to fields which are already overcrowded. In engineering, at the undergraduate level, the latter seems to be the case. In both 1972 and 1982, over 22 per cent of international students selected engineering as their probable major. Over this period, domestic undergraduate interest in engineering rose from 6.9 per cent to 12.6 per cent. Engineering not only is a highly crowded field, but it also is an expensive one to teach. The choice of engineering by foreign students seems to be a costly one for U.S. education.

On the other hand, foreign-born American residents select the humanities, social sciences, and some physical sciences more frequently than seen in the national norms. These fields are generally undersubscribed and (except for the physical sciences) relatively inexpensive to teach. Foreign students selecting these fields are not imposing much incremental cost on U.S. institutions.

The second part of the school goal picture is derived from the degree aspirations reported by entering freshmen (Table 37). The CIRP questionnaire asks freshmen to indicate the highest degree they intend to obtain. The responses to this question have changed between 1972 and 1982, in the national norms and for the two groups of foreign students. Additionally, the responses of the foreign freshmen groups differ significantly from the national norms.

Generally, in the national norms, there has been a drop of 44.1 per cent in the percentage of entering freshmen who have no degree aspirations. This category applied to 3.4 per cent of the total population in 1972, and only 1.9 per cent by 1982. There was a slight increase in the students who intended to obtain an associate's degree (up 2.5 per cent) or a bachelor's degree (up 2.7 per cent). In the national picture, the most significant change was in the proportion of students who intended to earn a master's degree. Here, the national norms changed from 27.4 per cent of the population in 1972 to 30.5 per cent in 1982. These figures indicate an increase of 11.3 per cent in this category. Finally, in the national norms, there was a 9.5 per cent decrease in the share of students who wanted to obtain a doctoral level degree. In the total freshman population, this degree aspiration dropped from 21 per cent of the group in 1972 to 19 per cent in 1982.

The change pattern was somewhat different for the resident and non-resident foreign freshmen. Among the resident foreign-born freshmen, there were substantial reductions in the proportions of students who did not intend to earn a degree (−58.5 per cent) or who planned to terminate their school experience with an associate arts (−84.9 per cent) or a bachelor's degree (−25.8 per cent). At the same time, there were large increases in the proportion of resident foreign freshmen who planned to earn degrees at the master's or doctoral levels. Those with plans to earn a master's degree increased from 29.6 per cent in 1972 to 33.7 per cent in 1982, resulting in a percentage increase of 13.9 per cent. The percentage of resident aliens who intended to obtain a doctoral degree rose from 25.5 per cent in 1972 to 40.7 per cent in 1982, resulting in a tremendous 59.6 per cent increase.

The degree aspirations of the non-resident foreign freshmen group show a different change pattern. The most significant changes were an 8.9 per cent decrease in those intending to end their education with a bachelor's degree and a 16.4 per cent increase in students who planned to obtain a doctoral degree. The other changes in degree aspirations in the non-resident international group are not significant because they represent slight shifts in small numbers of students.

It is interesting also to compare the proportions of each group with low level or no degree aspirations and the percentages who intend to obtain advanced degrees. In 1972, the responses of the resident and non-resident foreign students were different from each other as well as from the national norms. For that year, the resident aliens group showed the largest percentage, 12.7 per cent, in the low level or no degree aspirations category. The non-resident international group of first-time full-time students had only 4.5 per cent of its population in this low aspiration category in 1972. For this earlier year, the national norm figures indicated that 11.5 per cent of the total freshman population had low degree aspirations. In 1972, the proportions of freshmen with aspiration for higher degrees likewise differed among these groups. Only 48.4 per cent of the total freshman population intended to receive an advanced degree. This figure can be compared with the higher proportion (55.1 per cent) for resident aliens and the substantially higher (71.5 per cent) for non-resident foreign freshmen. Additionally, a high proportion (37.3 per cent) of the total freshman population planned to end their educational endeavors with a bachelor's degree in 1972. The percentages of foreign freshmen were smaller; among resident alien freshmen, 27.9 per cent chose this goal in 1972, and among non-resident freshmen only 20.2 per cent.

By 1982, the two groups of foreign freshmen were more similar to each other than to the national norms. The proportion of foreign freshmen with low level degree aspirations was now considerably smaller than the figures of the national norms. Only 3.0 per cent of the resident foreign-born freshmen and 3.6 per cent of the non-resident foreign freshmen indicated no degree or the associate's degree as their educational goal, compared with about 10 per cent in the 1982 national norms. The 1982 national norm for those whose final educational objective was a bachelor's degree was 38.3 per cent, compared with only 20.7 per cent in the resident alien population and 18.4 per cent in the non-resident international population. Finally, the proportion of both groups of foreign freshmen with advanced degree aspirations was much higher than the incidence in the general freshman population. The 1982 national norm for freshmen intending to obtain a master's or doctorate degree was just under 50 per cent, while the proportion in each foreign student population was approximately 75 per cent. Aside from the generally higher expectations of the foreign student groups, it is interesting to note that the degree aspirations of foreign-born American residents have undergone a tremendous shift upward from the 1972 figures.

Section C: Degrees Awarded to Domestic and Foreign Students by Field of Study

Now that we have examined the aspirations of foreign and domestic students upon entering postsecondary institutions (from the CIRP data), we will look at degree outcomes (from the HEGIS data), disaggregated by major field of study and academic level, for these groups of students.[1] While the two data sets deal with different students, the match between the aspirations and expectations of entering students, on the one hand, and degree outcomes, on the other, can provide some interesting insights into the relationship between these measures.

Since costs of providing education vary substantially according to field of study, the distribution by major field of study of domestic and foreign students plays an important role in determining costs of educating each group. However, the incremental cost of educating any student depends upon how fully subscribed a field is. If there are empty seats in a classroom, the extra costs of adding one more student will be small. On the other hand, if adding one more student requires new classes, new faculty, or new equipment, then those new students represent a real cost increase. Thus, costs of foreign students depend not only upon major field of study (and level of study and part-time or full-time status discussed above), but upon whether there are existing vacancies in the classes the foreign students take. Therefore, it is important to note whether the fields experiencing increasing foreign enrollments are those in which domestic enrollments are declining, constant, or increasing. In general, if foreign students are entering fields to replace domestic students whose enrollments are falling, the foreign students' costs will be lower than if they enter fields which are also in high demand by domestic students.

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[1] It should be noted that the figures presented in this section for degrees awarded by level differ slightly from those indicated in the section of degrees awarded by selectivity of the granting institution. This discrepancy exists because only 2,537 of some 3,000 schools which are a part of the HEGIS data base reported SAT scores. Thus, the HEGIS figures reported in this section are somewhat larger than those presented on the degrees by institutional selectivity.

Bachelor's Degrees

First, the number of bachelor's degrees awarded overall remained fairly constant, totaling 934,444 in 1976 and 946,877 in 1982, an increase of only 1.3 per cent. However, Table 39 reveals that much of this growth is attributable to the increase in the degrees awarded to foreign students. While there was an increase of only one half of one per cent, or 4,214, in the number of degrees conferred on domestic students during this time period, 8,619 more degrees were awarded to foreign students, an increase of 57 per cent. In 1976, 1.5 per cent of the bachelor's degrees were awarded to foreign students (Table 38); by 1982, 2.4 per cent of the bachelor's degrees went to foreign students.

While foreign students received 2.4 per cent of the bachelor's degrees in 1982, the percentage of degrees in several fields is higher than the overall figure. Over nine per cent of the undergraduate engineering degrees were earned by foreign students, as well as over five per cent of the architecture degrees and the computer science degrees, four per cent of the mathematics degrees, and approximately three per cent of the undergraduate degrees in physical science and agriculture. It should be noted that all these fields are relatively expensive in regard to laboratories and equipment, faculty salaries, and so on. These were also fields in high demand by domestic students.

As already noted, the impact of foreign students on American institutions of higher education is related to the enrollment shifts occurring among fields of study and the role of the growing number of foreign students as space-fillers or as competitors.

Despite the small increase in the total number of degrees conferred on domestic students, there have been dramatic shifts in the major fields in which the degrees were awarded. The largest growth area has been in computer science which showed an increase of 165 per cent in degrees awarded to domestic students (Table 39). The next cluster of increases occurred in engineering (57 per cent), communciations (47 per cent), and business management (40.2 per cent). The areas of decline were in library science (−55.5 per cent), foreign languages (−32.6 per cent), mathematics (−32.1 per cent), social sciences (−21 per cent), biological sciences (−20.2 per cent), and psychology (−18.1 per cent).

Among the foreign students, there were increases in the numbers of bachelor's degrees awarded in most major fields. The exceptions were in library science, with a decrease of 50 per cent, and foreign languages, which showed a 22.3 per cent decline. As with the domestic group, the largest gain appeared in the field of computer science, which had an increase of 264.8 per cent in the number of degrees awarded to foreign students. The number of agriculture degrees doubled. Interdisciplinary degrees increased

TABLE 38 Bachelor's Degrees Awarded to Domestic and Foreign Students

	1976						1982					
	Domestic Students			Foreign Students			Domestic Students			Foreign Students		
Major Field	RANK	Number	Percent	RANK	Number	Percent	RANK	Number	Percent	RANK	Number	Percent
Education	1	155,808	16.9	5	720	5.0	2	109,795	11.9	4	920	4.1
Business/mgmt.	2	142,082	15.4	2	2,953	20.5	1	199,232	21.6	2	4,578	20.2
Social Science	3	126,231	13.7	3	1,705	11.8	3	99,752	10.8	3	1,983	8.3
Bio. Science	4	54,054	5.9	4	859	6.0	6	443,143	4.7	5	903	4.0
Health Profess.	5	53,787	5.8	6	552	3.8	5	64,091	6.9	10	582	2.6
Letters	6	51,831	5.6	9	461	3.2	8	39,786	4.3	3	477	2.1
Psychology	7	49,905	5.4	9	458	3.2	7	40,878	4.4	13	486	2.1
Engineering	8	43,586	4.7	1	3,131	21.7	4	68,432	7.4	1	6,963	30.8
Fine Arts	9	41,852	4.5	7	519	3.6	8	39,844	4.3	7	719	3.2
Public Affairs	10	33,360	3.6	16	232	1.6	10	36,638	4.0	17	316	1.4
Interdiscipline	11	32,521	3.5	15	279	1.9	11	34,429	3.7	11	502	2.2
Physical Science	12	21,063	2.3	8	497	3.4	13	23,443	2.5	7	732	3.2
Communications	13	21,068	2.3	17	214	1.5	12	330,964	3.4	16	369	1.6
Agriculture	14	19,153	2.1	13	307	2.1	14	21,417	2.3	9	616	2.7
Home Economics	15	17,347	1.9	19	176	1.2	15	18,260	2.0	18	287	1.3
Foreign Language	16	15,237	1.7	11	350	2.4	18	10,276	1.1	19	272	1.2
Mathematics	16	15,792	1.7	14	293	2.0	17	10,717	1.2	15	456	2.0
Architecture	18	8,856	1.0	12	313	2.2	19	8,991	1.0	11	496	2.2
Theology	19	5,408	.6	20	129	.9	20	5,712	.6	20	138	.6
Computer Science	19	5,451	.6	17	213	1.5	16	114,456	1.6	6	777	3.4
Area studies	21	3,080	.3	21	31	.2	21	2,535	.3	21	50	.2
Library Science	22	841	.1	23	2	.0	23	374	.0	22	1	.0
Law	22	529	.1	23	2	.0	22	778	.1	22	6	.0
Military Science	22	1,190	.1	22	16	.1	23	303	.0	22	2	.0
Totals		920,032	100.0		14,412	100.0		924,246	100.0		22,631	100.0

TABLE 39 Percent Change in Bachelors Degrees Awarded 1976–1982

		Percent Change in Degrees Awarded 1976–1982		
Major Field	RANK	Domestic Students (%)	RANK	Foreign Students (%)
Computer Science	1	165.2	1	264.8
Military Science	2	−74.5	5	−87.5
Engineering	3	57.0	3	122.4
Library Science	4	−55.5	12	−50.0
Law	5	47.1	2	200.0
Communications	6	47.0	7	72.4
Business/mgmt.	7	40.2	12	55.0
Foreign language	8	−32.6	18	−22.3
Mathematics	9	−32.1	11	55.6
Education	10	−29.5	17	27.8
Letters	11	−23.2	24	3.5
Social Science	12	−21.0	19	16.3
Bio. Science	13	−20.2	23	5.1
Health Profess.	14	19.2	22	5.4
Psychology	15	−18.1	21	6.1
Area studies	16	−17.7	9	61.3
Agriculture	17	11.8	4	100.7
Physical Science	18	11.3	14	47.3
Public Affairs	19	9.8	16	36.2
Interdiscipline	20	5.9	6	79.9
Theology	21	5.6	20	7.0
Home Economics	22	5.3	8	63.1
Fine Arts	23	−4.8	15	38.5
Architecture	24	1.5	10	58.5
Totals		.5		57.0
Number		4,214		8,619

by almost 80 per cent and communications degrees rose by 72.4 per cent. Other fields with significant increases were home economics (63.1 per cent), architecture (58.5 per cent), mathematics (55.6 per cent), business-management (55 per cent), and physical sciences (47.3 per cent).

Combined data for foreign and domestic degree recipients suggest that the foreign students have a competitive role in some fields and a fill-in or replacement role in others. The disciplines in which the foreign students may be competing for limited spaces are computer science, engineering, communications, business-management, and physical sciences. In these fields the percentage of degrees awarded rose for domestic and foreign

TABLE 40 Bachelor's Degrees: Distributions by Domestic and Foreign Students

Major Field	1976					1982				
	RANK	Distribution of Degrees to Domestic (%)	RANK	Distribution of Degrees to Foreign (%)	Percent of Degrees to Foreign (%)	RANK	Distribution of Degrees to Domestic (%)	RANK	Distribution of Degrees to Foreign (%)	Percent of Degrees to Foreign (%)
Education	1	16.9	5	5.0	.5	2	11.9	4	4.1	.8
Business/mgmt.	2	15.4	2	20.5	2.0	1	21.6	2	20.2	2.2
Social Science	3	13.7	3	11.8	1.3	3	10.8	3	8.8	1.9
Bio. Science	4	5.9	4	6.0	1.6	6	4.7	5	4.0	2.1
Health Profess.	5	5.8	6	3.8	1.0	5	6.9	10	2.6	.9
Letters	6	5.6	9	3.2	.9	8	4.3	13	2.1	1.2
Psychology	7	5.4	9	3.2	.9	7	4.4	13	2.1	1.2
Engineering	8	4.7	1	21.7	6.7	4	7.4	1	30.8	9.2
Fine Arts	9	4.5	7	3.6	1.2	8	4.3	7	3.2	1.8
Public Affairs	10	3.6	16	1.6	.7	9	4.0	17	1.4	.9
Interdiscipline	11	3.5	15	1.9	.9	11	3.7	11	2.2	1.4
Physical Science	12	2.3	8	3.4	2.3	13	2.5	7	3.2	3.0
Communications	13	2.3	17	1.5	1.0	12	3.4	16	1.6	1.2
Agriculture	14	2.1	13	2.1	1.6	14	2.3	9	2.7	2.8
Home Economics	15	1.9	19	1.2	1.0	15	2.0	18	1.3	1.5
Mathematics	16	1.7	14	2.0	1.8	17	1.2	15	2.0	4.1
Foreign language	16	1.7	11	2.4	2.2	18	1.1	19	1.2	2.6
Architecture	18	1.0	12	2.2	3.4	19	1.0	11	2.2	5.2
Theology	19	.6	20	.9	2.3	20	.6	20	.6	2.4
Computer Science	19	.6	17	1.5	3.8	16	1.6	6	3.4	5.1
Area studies	21	.3	21	.2	1.0	21	.3	21	.2	1.9
Law	22	.1	22	0.0	.4	22	.1	22	0.0	.8
Library Science	22	.1	23	0.0	.2	23	0.0	22	0.0	.3
Military Science	22	.1	23	.1	1.3	23	0.0	22	0.0	.7
Total		99.8*		99.8*	1.5		100.1*		99.9*	2.4
Number		920,032		14,412			924,246		22,631	

* Totals other than 100.0% due to rounding error.

TABLE 41 Masters Degrees Awarded to Domestic and Foreign Students

	1976							1982						
	Domestic Students			Foreign Students				Domestic Students			Foreign Students			
Major Field	RANK	Number	Percent	RANK	Number	Percent	Percent of Degrees to Foreign	RANK	Number	Percent	RANK	Number	Percent	Percent of Degrees to Foreign
Education	1	126,203	42.4	3	2,207	14.1	1.7	1	95,933	34.9	3	2,699	12.2	2.7
Business/mgmt.	2	39,609	13.3	2	3,119	19.9	7.3	2	53,140	19.3	1	5,052	22.9	8.7
Public Affairs	3	16,890	5.7	8	443	2.8	2.6	3	19,552	7.1	7	719	3.3	3.5
Social Science	4	14,651	4.9	4	1,251	8.0	7.9	6	10,387	3.8	4	1,595	7.2	13.3
Engineering	5	12,861	4.3	1	3,488	22.2	21.3	5	12,153	4.4	2	4,563	20.7	27.3
Health Profess.	6	12,169	4.1	7	527	3.4	4.2	4	15,987	5.8	8	698	3.2	4.2
Letters	7	10,915	3.7	8	441	2.8	3.9	8	7,772	2.8	10	580	2.6	6.9
Fine Arts	8	8,567	2.9	14	253	1.6	2.9	7	8,205	3.0	13	424	1.9	4.9
Library Science	9	7,895	2.7	16	189	1.2	2.3	11	4,696	1.7	21	175	.8	3.6
Psychology	10	7,672	2.6	16	187	1.2	2.4	8	7,769	2.8	17	270	1.2	3.4
Bio. Science	11	6,228	2.1	10	393	2.5	5.9	10	5,647	2.1	14	368	1.7	6.1
Physical Science	12	4,854	1.6	5	631	4.0	11.5	12	4,514	1.6	6	786	3.6	14.8
Mathematics	13	3,571	1.2	13	292	1.9	7.6	20	2,105	.8	11	464	2.1	18.1
Interdiscipline	13	3,711	1.2	22	80	.5	2.1	13	4,236	1.5	16	283	1.3	6.3
Foreign language	15	3,364	1.1	19	177	1.1	5.0	21	1,893	.7	20	227	1.0	10.7
Architecture	16	2,877	1.0	11	338	2.2	10.5	17	2,701	1.0	11	458	2.1	14.5
Communications	16	2,959	1.0	19	169	1.1	5.4	17	2,861	1.0	19	244	1.1	7.9
Theology	16	3,110	1.0	16	182	1.2	5.5	14	3,951	1.4	17	269	1.2	6.4
Agriculture	19	2,792	.9	6	559	3.6	16.7	15	3,307	1.2	8	710	3.2	17.7
Computer Science	20	2,282	.8	12	321	2.0	12.3	15	3,314	1.2	5	904	4.1	21.4
Home Economics	21	2,069	.7	21	118	.8	5.4	19	2,427	.9	22	143	.6	5.6
Law	22	1,185	.4	14	257	1.6	17.8	22	1,494	.5	15	338	1.5	18.4
Area studies	23	882	.3	23	63	.4	6.7	23	653	.2	23	89	.4	12.0
Military Science	24	0	0.0	24	0	0.0	0.0	24	43	.0	24	0	0.0	0.0
Total		297,316	100.0		15,685	100.0	5.0		274,740	100.0		22,058	100.0	7.4

TABLE 42 Percent Change in Master's Degrees Awarded

Major Field	RANK	Percent Change in Degrees Awarded 1976–1982 Domestic Students (%)	RANK	Foreign Students (%)
Computer Science	1	45.2	2	181.6
Foreign language	2	−43.7	16	28.2
Mathematics	3	−41.1	6	58.9
Library Science	4	−40.5	22	−7.4
Business/mgmt.	5	34.2	5	62.0
Health Profess.	6	31.4	12	32.4
Social Science	7	−29.1	17	27.5
Letters	8	−28.8	13	31.5
Theology	9	27.0	7	47.8
Law	10	26.1	13	31.5
Area studies	11	−26.0	10	41.3
Education	12	−24.0	20	22.3
Agriculture	13	18.4	18	27.0
Home Economics	14	17.3	21	21.2
Public Affairs	15	15.8	4	62.3
Interdiscipline	16	14.1	1	253.8
Bio. Science	17	−9.3	23	−6.4
Physical Science	18	−7.0	19	24.6
Architecture	18	−6.1	11	35.5
Engineering	20	−5.5	15	30.8
Fine Arts	21	−4.2	3	67.6
Communications	22	−3.3	8	44.4
Psychology	23	1.3	8	44.4
Military Science	24	0.0	24	0.0
Total		−7.6		40.6
Total number		(22,576)		6,373

students alike, indicating a shared popularity. However, the more common role of undergraduate foreign students appears to be that of replacing domestic students in areas of declining domestic demand. This trend is most pronounced in the fields of social science, fine arts, area studies, home economics, education, and mathematics. Such substitution is seen to a lesser degree in the areas of agriculture, architecture, biological sciences, psychology, and interdisciplinary studies.

A look at the bachelor's degrees awarded broken down by field allows us to see a somewhat different pattern of popularity among the fields of study for foreign and domestic students. Table 40 indicates that in 1982, the top three fields for foreign students were engineering (30.8 per cent), business (20.2 per cent), and social science (8.8 per cent). These three areas of study captured close to 60 per cent of the foreign undergraduates. They were followed by education (4.1 per cent) and biological sciences (4 per cent). Generally, the bachelor's degrees awarded to domestic students in 1982, were less concentrated in a small number of fields than were those conferred on international students. For domestic students the top three fields were business (21.6 per cent), education (11.9 per cent), and social science (10.8 per cent). These major fields were followed by engineering (7.4 per cent), biological sciences (4.7 per cent), psychology (4.4 per cent), fine arts (4.3 per cent), and letters (4.3 per cent).

Thus, certain disciplines head the list in popularity for both domestic and foreign undergraduates. These fields of study are engineering, business, education, social science, and biological sciences. Among domestic students, psychology, fine arts, and letters are more popular than among foreign students. Finally, in terms of the general distribution of degrees, the profiles of foreign and domestic students differ most widely in three areas of study. Education degrees accounted for 11.9 per cent of the total undergraduate degrees awarded to domestic students and only 4.1 per cent of the degrees conferred on foreign students. The health professions accounted for a larger proportion of domestic degrees (6.9 per cent), compared with only 2.6 per cent of foreign degrees. Engineering degrees accounted for 30.8 per cent of the degrees awarded to foreigners, but only 7.4 per cent of the degrees to American residents.

When comparing the areas of study selected by foreign students and domestic students, one must keep in mind that foreign student choices are influenced by subjects of study not available or not competently taught in their home countries. First, some fields like education have been successfully developed at some foreign institutions of higher education. Thus, even if education is just as interesting to foreign students as to domestic students, the future foreign educators have less need to come abroad for study. In general, fields that do not entail high levels of technical expertise and capital equipment are among the subjects which are well taught in foreign settings.

Second, some subjects may not appropriately be taught in the United States. Why, for example, would a German come to the United States to study German? To be sure, some foreign students put so high a value on an educational experience in the United States in and of itself that a specific field of study assumes secondary importance. There is also the issue of relevance: some subjects (tropical diseases or tropical agriculture) may best be studied at sites in developing countries. The relevance of U.S. higher education for foreign students in a variety of fields is a complicated one that we can only allude to here.

Master's Degrees

The 296,798 master's degrees awarded in 1982 indicate a decline of 5.2 per cent from the 313,001 degrees conferred in 1976 (Table 41). However, in examining the separate figures for the foreign and domestic populations, we note that this negative change results from a drop of 7.6 per cent or 22,576 fewer master's degrees awarded to domestic students and a sharp increase of 40.6 per cent or 6,373 degrees to foreign students (Table 42). Here it seems clear that the increase in foreign student participation has helped stem the general tide of decline at the master's level. In 1976, five per cent of the master's degrees were earned by foreigners (Table 41); by 1982, this percentage had increased to 7.4 per cent.

As in the case of bachelor's degrees, the proportion of degrees awarded to international students varied by field of study in 1982 (Table 41). In engineering, 27.3 per cent of the master's degrees went to foreign students. Close behind, in computer science 21.4 per cent of the degrees awarded to foreign students. Other fields in which a higher than average number of master's degrees were awarded to foreign students were law (18.4 per cent), mathematics (18.1 per cent), agriculture (17.7 per cent), physical sciences (14.8 per cent), architecture (14.5 per cent), social sciences (13.3 per cent), and area studies (12.0 per cent).

Once again, we consider in what areas the foreign students play a competitive role and in what fields they fill empty spaces created by declining domestic enrollments at the master's level. Here, as with the bachelor's degrees, foreign and domestic students received similar proportions of degrees in several areas (Tables 41 and 42). In computer science, 1,032 more degrees were awarded to domestic students in 1982 (an increase of 45.2 per cent), and 583 more degrees went to foreign students, a 181.6 per cent rise. But the percentage increase in computer science degrees awarded to foreigners was substantially more than the increase of such degrees received by domestic students, so that in one of the few areas where domestic degrees increased, foreign students appear to have assumed a competitive role. Similarly, business-management degrees increased for both groups, and again, the number of degrees awarded to foreign students increased by a much greater percentage (62.0 per cent) than those awarded to American resident students (34.2 per cent). In actual numbers, 13,531 more MBA degrees were awarded to domestic students, while there were 1,933 more of these degrees conferred upon foreign students. Thus, for the time period under discussion here, 12.5 per cent of the overall increase in MBA's awarded in this country was attributable to the increase in degrees to foreign students.

Other disciplines in which both groups showed a similar growth pattern were the health professions, home economics, and law. In the health professions, 3,989 more degrees were awarded in 1982 than in 1976. Of these added degrees, 4.3 per cent of 171 degrees went to foreign students. In the area of home economics, a slight increase of 383 degrees occurred. For this field, only 25 degrees (6.5 per cent) of the increase in degrees went to foreign students. Finally, in law, 81 of the increase of 390 degrees went to international students, so that the additional degrees to foreigners accounted for 20.8 per cent of the increase in this field.

Degrees conferred on both groups declined in the biological sciences. In this field there was a drop of 9.3 per cent in the number of degrees awarded to domestic students and a decline of 6.4 per cent in degrees to foreigners.

Here, the foreign students neither competed with nor filled in for domestic students.

In spite of the patterns in the fields discussed above, there are data to support the contention that foreign students are filling empty spaces in many fields where declines in the number of degrees earned by domestic students are coupled with increases in degrees conferred on international students. The fill-in role can be seen in engineering, psychology, communications, architecture, fine arts, physical science, mathematics, areas studies, social science, foreign language, letters, and education.

To clarify the role foreign students play in compensating for declines in domestic enrollments, the domestic decline in degrees awarded and the increases of degrees to foreign students have been combined to form a ratio of compensation. Generally, the order of substitutability can be derived from these ratios. A ratio that is greater than zero indicates that the increase in degrees to foreigners partially compensates for the decline in degrees to American residents. The closer this number is to 1.0, the smaller the compensation. The degree of compensation increases as the number approaches 0.0, the level at which the increase in degrees to international students exactly compensates for the decrease in degrees to domestic students. Negative ratios indicate overcompensation. Here, the larger the negative number, the greater the amount of compensation. Thus, the order of substitutability in the following section has been determined by using this compensation ratio.

Using this technique, one sees that the compensation is greatest in engineering. In engineering, the increase of 1,075 master's degrees to foreign students more than offsets the drop of 708 master's degrees to domestic candidates, resulting in a compensation ratio of −0.52. Next, in the field of psychology, the increase of 83 degrees to foreign students comes close to offsetting the drop of 97 degrees in master's degrees to domestic students. Here the ratio was 0.14, in the range of partial compensation. In the field of communications, the decrease of 98 degrees to domestic students was partially compensated by an increase of 75 degrees to foreigners, resulting in a compensation ratio of 0.23. In architecture, there was a drop of 176 in the number of degrees awarded to American residents, while the degrees to international students increased by 120, for a compensation ratio of 0.32. In fine arts, a compensation ratio of 0.35 results from the 262 fewer degrees awarded to domestic students coupled with the increase of 171 degrees for foreign students.

In physical science, the compensation ratio of 0.54 indicates that the 155 degree increase in master's degrees for the foreign population partially offsets the 340 fewer degrees awarded to domestic candidates. In the field of mathematics, the substantial increase of 172 master's degrees to foreign students partially compensates (0.88 ratio of compensation) for the 1,466 decrease in degrees for the domestic population. A similar ratio of compensation (0.89) occurs in area studies, where 229 fewer degrees were conferred on domestic students and 26 more went to foreigners. There was a tremendous 4,264 degree decline in the number of degrees awarded to domestic students in social science. At the same time, there were 344 more social science degrees awarded to foreign students, resulting in a compensation ratio of 0.92. In the area of foreign language, a compensation ratio of 0.97 results from the great decline of 1,471 degrees to domestic students, coupled with a small increase of 50 degrees to foreign candidates.

Finally, at the master's level in letters and education, the degrees awarded to foreigners partially compensate for declines in degrees to American residents. In letters, the reduction by 3,143 in the number of degrees to domestic students was accompanied by an increase of 50 degrees to foreign students, and, thus, a compensation ratio of 0.98. In education, there was a phenomenal drop of 30,270 in degrees awarded to domestic students. Though there was a sizeable increase of 492 degrees to foreign students, the great difference in these figures results in a compensation ratio of 0.98.

Thus, to varying degrees in each of the cases described above, increases in the numbers of foreign degree recipients have slowed the decline of overall degrees awarded at the master's level.

Doctorate Degrees

Foreign students account for a greater proportion of doctorate degrees than degrees at the bachelor's or the master's level. In 1976, 11.7 per cent, or 3,998 of the 34,076 doctoral degrees awarded went to foreign students (Table 43). By 1982, the proportion of doctorate degrees awarded to noncitizens rose to 12.7 per cent, or 4,204 out of the total 32,982 doctoral degrees awarded that year. The data reveal an overall 3.2 per cent DECLINE in the number of doctoral degrees awarded (Table 44). However, when the data are separated by foreign and domestic candidates, the 3.2 per cent reduction in degrees consists of a 4.3 per cent decline in the number of degrees conferred on American residents (1,300 fewer) and an INCREASE of 5.2 per cent or 206 more degrees earned by foreign students. Once again, in terms of the overall picture, the increases in degrees to international students have helped stem the tide of decline at this level of higher education.

A closer look at the decline in the number of doctorate degrees to domestic students reveals considerable shifting in numbers of degrees awarded among fields (Table 44). Despite the overall decline in doctorate degrees awarded, some fields showed considerable growth. By order of magnitude, these growing fields were: health professions, which grew by 45.9 per cent; home economics, which increased in degrees awarded by 38.8 per cent; public affairs, which gave 35.7 per cent more degrees; and theology, which awarded 23.5 per cent more degrees. In these fields the growth was mainly attributable to increases in degrees to American residents, though the figures were boosted by degrees to foreign students in home economics and theology.

Indeed, with the exception of biology, all fields with overall increases in doctoral degrees grew in degrees awarded to foreign as well as to domestic students. These fields may be thought of as ones in which foreign students competed for positions, rather than filling empty slots. Other fields which have maintained or increased their level of popularity with both groups are:

TABLE 43 Doctorate Degrees Awarded to Domestic and Foreign Students

	1976							1982						
	Domestic Students			Foreign Students				Domestic Students			Foreign Students			
Major Field	RANK	Number	Percent	RANK	Number	Percent	Percent of Degrees to Foreign	RANK	Number	Percent	RANK	Number	Percent	Percent of Degrees to Foreign
Education	1	7,391	24.6	4	378	9.5	4.9	1	7,307	25.4	2	593	14.1	7.5
Social Science	2	3,656	12.2	3	504	12.6	12.1	5	2,701	9.4	4	418	9.9	13.4
Bio. Science	3	3,048	10.1	5	349	8.7	10.3	2	3,435	11.9	6	289	6.9	7.8
Physical Science	4	2,863	9.5	2	570	14.3	16.6	4	2,615	9.1	3	530	12.6	16.9
Psychology	5	2,495	8.3	11	86	2.2	3.3	3	2,869	10.0	10	95	2.3	3.2
Letters	6	2,306	7.7	9	146	3.7	6.0	6	1,653	5.7	9	142	3.4	7.9
Engineering	7	1,846	6.1	1	975	24.4	34.6	7	1,605	5.6	1	956	22.7	37.3
Theology	8	993	3.3	14	40	1.0	3.9	8	1,186	4.1	11	90	2.1	7.1
Business/mgmt.	9	802	2.7	8	154	3.9	16.1	11	684	2.4	8	161	3.8	19.1
Foreign language	10	774	2.6	10	90	2.3	10.4	14	522	1.8	13	66	1.6	11.2
Mathematics	11	696	2.3	7	160	4.0	18.7	13	555	1.9	7	173	4.1	23.8
Agriculture	12	664	2.2	6	264	6.6	28.4	10	724	2.5	5	343	8.2	32.1
Fine Arts	13	585	1.9	15	35	.9	5.6	12	617	2.1	15	37	.9	5.7
Health profess.	14	503	1.7	12	74	1.9	12.8	9	754	2.6	11	88	2.1	10.5
Public Affairs	15	293	1.0	16	26	.7	8.2	15	405	1.4	16	28	.7	6.5
Interdiscipline	16	246	.8	16	27	.7	9.9	16	250	.9	16	29	.7	10.4
Computer Science	17	198	.7	13	46	1.2	18.9	18	200	.7	14	52	1.2	20.6
Area studies	18	172	.6	21	10	.3	5.5	20	138	.5	20	19	.5	12.1
Communications	18	193	.6	21	11	.3	6.4	19	160	.6	20	22	.5	12.1
Home Economics	20	163	.5	19	15	.4	8.4	17	223	.8	18	24	.6	9.7
Architecture	21	65	.2	19	17	.4	20.7	21	69	.2	18	24	.6	25.8
Law	21	58	.2	18	18	.5	23.7	23	42	.1	22	18	.4	30.0
Library Science	21	68	.2	23	3	.1	4.2	21	64	.2	23	7	.2	9.9
Military Science	24	0	0.0	24	0	0.0	0.0	24	0	0.0	24	0	0.0	0.0
Total		30,078	100.0		3,998	100.0	11.7		28,778	100.0		4,204	100.0	12.7

TABLE 44 Percent Change in Doctorate Degrees Awarded

	Percent Change in Degrees Awarded 1976–1982				
Major Field	RANK	Domestic Students (%)	RANK	Foreign Students (%)	Total Change
Health Profess.	1	49.9	10	18.9	45.9
Public Affairs	2	38.2	16	7.7	35.7
Home Economics	3	36.8	5	60.0	38.8
Foreign language	4	−32.6	9	−26.7	−31.9
Letters	5	−28.3	21	−2.7	−26.8
Law	6	−27.6	23	0.0	−21.1
Social Science	7	−26.1	12	−17.1	−25.0
Mathematics	8	−20.3	15	8.1	−15.0
Area studies	9	−19.8	4	90.0	−13.7
Theology	10	19.4	2	125.0	23.5
Communications	11	−17.1	3	100.0	−10.8
Psychology	12	15.0	14	10.5	14.8
Business/mgmt.	13	−14.7	20	4.5	−11.6
Engineering	14	−13.1	22	−1.9	−9.2
Bio. Science	15	12.7	11	−17.2	9.6
Agriculture	16	9.0	8	29.9	15.0
Physical Science	17	−8.7	18	−7.0	−8.4
Architecture	18	6.2	7	41.2	13.4
Library Science	19	−5.9	1	133.3	0.0
Fine Arts	20	5.5	19	5.7	5.5
Interdiscipline	21	1.6	17	7.4	2.2
Education	22	−1.1	6	56.9	1.7
Computer Science	23	1.0	13	13.0	3.3
Military Science	24	0.0	23	0.0	0.0
Total		−4.3		5.2	−3.2
Total number		(1,300)		206	(1,194)

psychology, agriculture, fine arts, and computer science. Only in biological sciences was the 12.7 per cent increase in degrees to domestic students offset by a decline of 17.2 per cent in degrees to foreign students, though overall there was an increase of 9.6 per cent.

Some fields were marked by a decline in numbers of degrees awarded to both foreign and domestic students. The two disciplines with most notable reductions in degrees awarded were foreign languages and social science. In the field of foreign languages, the number of degrees awarded dropped by 32.6 per cent, or 222, among domestic students and by 26.7 per cent, or 24 among foreign students, resulting in an overall decline of 31.9 per cent in degrees awarded. Social science doctorates dropped by 955 degrees, or 26.1 per cent, among domestic students and by 17.1 per cent, or 86 degrees, among foreigners.

Once again, at the doctoral level we find instances in which a reduction in degrees awarded to domestic students is offset by an increase in degrees to foreign students. These cases seem to indicate the fill-in role foreign students take in some disciplines. The numbers at the doctoral level are quite small and seem trivial in comparison with the larger numbers at the master's level. However, when one considers the great cost of educating students at the Ph.D. level, especially such fixed costs as faculty salaries, the small quantities may carry greater weight.

There are six disciplines in which the decline in domestic doctorate degrees is paired with an increase in degrees to foreign students: education, library science, communications, area studies, mathematics, and business/management.[1] Once again, a ratio of compensation has been calculated to indicate the degree of compensation that has resulted from increases in doctoral degrees awarded to foreign students. In education, there was a drop of 84 in the number of doctoral degrees awarded to domestic students, while there was an increase of 215 in degrees to foreigners. Here, the compensation ratio of −1.56 indicates that the increases in the degrees awarded to foreigners overcompensated for declines in degrees awarded to the American residents. In library science, an increase of 133.3 per cent, or of 4 degrees, to foreigners completely cancelled out the 5.9 per cent drop of 4 degrees to domestic students, causing the overall number of degrees awarded to stay the same (0.0 ratio of compensation). The communications field had a 17.1 per cent reduction of 33 degrees to domestic students and an 100 per cent increase, or 11 more degrees, to foreign students, for a compensation ratio of 0.67. In area studies, a 19.8 per cent decrease, or 34 fewer, domestic degrees was accompanied by a 90 per cent increase, or 9 degrees, to foreigners. The increase in degrees to foreigners changed the overall decline in area studies to only 13.7 per cent, and the resultant compensation ratio was 0.74. In mathematics a 20.3 per cent, or 141 degree, decline in domestic degrees was somewhat offset by an 8.1 per cent increase of 13 doctorate degrees to international students. The overall drop in the number of mathematics degrees was reduced to 15 per cent, and the ratio of compensation was 0.91. Finally, in business/management the 118 decline in degree awards to domestic students was partially compensated by an increase of seven in degrees to foreigners, for a compensation ratio of 0.94. Thus, at the doctoral level the increase in degrees to foreign students has partially made up for a great decline in degrees awarded to domestic students.

While foreign students received 12.7 per cent of the doctorate degrees in 1982, the foreign student portion of degrees was higher than this overall figure in several fields (Table 45). The discipline of greatest foreign participation was engineering in which 37.3 per cent, 956 out of 2,561, of the degrees were earned by international students in 1982. (Since that time,

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[1] It should be noted that though engineering led in this category at the master's level, the figures for the doctoral degrees awarded indicate a decline in degrees awarded to both foreign and domestic students.

TABLE 45 Doctorate Degrees: Distribution by Foreign and Domestic Students

Major Field	1976 Distribution of Degrees to Domestic (%)	1976 Distribution of Degrees to Foreign (%)	1976 Percent of Degrees to Foreign (%)	1982 Distribution of Degrees to Domestic (%)	1982 Distribution of Degrees to Foreign (%)	1982 Percent of Degrees to Foreign (%)
Agriculture	2.2	6.6	28.4	2.5	8.2	32.1
Architecture	.2	.4	20.7	.2	.6	25.8
Area studies	.6	.3	5.5	.5	.5	12.1
Bio. Science	10.1	8.7	10.3	11.9	6.9	7.8
Business/mgmt.	2.7	3.9	16.1	2.4	3.8	19.1
Communications	.6	.3	5.4	.6	.5	12.1
Computer Science	.7	1.2	18.9	.7	1.2	20.6
Education	24.6	9.5	4.9	25.4	14.1	7.5
Engineering	6.1	24.4	34.6	5.6	22.7	37.3
Fine Arts	1.9	.9	5.6	2.1	.9	5.7
Foreign language	2.6	2.3	10.4	1.8	1.6	11.2
Health Profess.	1.7	1.9	12.8	2.6	2.1	10.5
Home Economics	.5	.4	8.4	.8	.6	9.7
Law	.2	.5	23.7	.1	.4	30.0
Letters	7.7	3.7	6.0	5.7	3.4	7.9
Library Science	.2	.1	4.2	.2	.2	9.9
Mathematics	2.3	4.0	18.7	1.9	4.1	23.8
Military Science	0.0	0.0	0.0	0.0	0.0	0.0
Physical Science	9.5	14.3	16.6	9.1	12.6	16.9
Psychology	8.3	2.2	3.3	10.0	2.3	3.2
Public Affairs	1.0	.7	8.2	1.4	.7	6.5
Social Science	12.2	12.6	12.1	9.4	9.9	13.4
Theology	3.3	1.0	3.9	4.1	2.1	7.1
Interdisciplinary	.8	.7	9.9	.9	.7	10.4
Total	100.0	100.6*	11.7	99.9*	100.1*	12.7
Total number	30,078	3,998		28,778	4,204	

* Totals other than 100.0% due to rounding error.

the proportion has risen to over 50 per cent.) Thirty-two and one-tenth per cent, or 343 out of 1,067, of the agriculture degrees and 30 per cent of the law degrees, 18 out of 60, went to foreign students. About a quarter of the architecture degrees (24 out of 93) and the mathematics degrees (173 out of 728) at the doctoral level were conferred on foreign candidates. Finally, in computer science, 20.6 per cent, or 52 out of 252, of the degrees and in physical science, 16.9 per cent, or 530 out of 3,145, of the doctorates were earned by foreigners in 1982.

A look at the five most popular fields for foreign and domestic students provides another interesting comparison. The top five fields are somewhat different for the two groups and the disciplines included in the top five changed during the period between 1976 and 1982 (Table 45).

In 1976, education headed the list by conferring roughly one quarter, or 7,391, of the doctoral degrees awarded to domestic students. Social science was second among domestic students with 12.2 per cent, or 3,656, of the degrees. Biological sciences were third, accounting for 3,048, or 10.1 per cent, of domestic doctorate degrees. Physical science was fourth with 9.5 per cent, or 2,863, in domestic doctoral degrees and psychology was fifth with 8.3 per cent, or 2,495. Engineering, the most popular field among foreign students, was in seventh place, accounting for 1,846 of the domestic Ph.D. degrees.

The top five fields in doctoral degrees awarded to foreigners in 1976 were similar to the domestic profile. Almost one quarter of foreign doctorates (975 degrees) were awarded in engineering. Physical science was second, accounting for 14.3 per cent, or 570, of the foreign doctor's degrees: The third area for foreign doctorates was social science with 504 degrees, or 12.6 per cent. Fourth, 9.5 per cent, or 378, of the foreign doctorates were awarded in education. Biological sciences were fifth with 349, or 8.7 per cent, of the foreign doctoral degrees awarded in this major field.

While in 1972 the top five disciplines overlap to a large extent for both domestic and foreign doctoral students, but the order is different. Additionally, engineering is of particular interest to foreign students and psychology is especially popular among domestic doctoral students.

By 1982, the top five fields or the order of the top five disciplines had changed somewhat for both foreign and domestic students. In terms of number of doctoral degrees awarded to domestic students, the top five disciplines were: education (25.4 per cent or 7,307 degrees), biological sciences (11.9 per cent or 3,435 degrees), psychology (10 per cent or 2,869 degrees), social science (9.4 per cent or 2,701 degrees), and physical science (9.1 per cent or 2,615 degrees). For international students, the top five fields were: engineering (22.7 per cent or 956 degrees), education (14.1 per cent or 593 degrees), physical science (12.6 per cent or 530 degrees), social science (9.9 per cent or 418 degrees), and agriculture (8.2 per cent or 343 degrees). While education, physical science, and social science were popular with both groups, agriculture and engineering were pursued particularly by foreign students, and biological sciences and psychology were chosen by greater proportions of domestic doctoral students.

We may note that domestic students choose the same top five fields over time, though there has been some shifting in the rankings. For foreign students, the interest in biological sciences has declined and agriculture has become more popular.

By reviewing Tables 39, 42, and 44, we can see the fields in which foreign students are competing with or replacing domestic students between 1976 and 1982. At the bachelor's level both foreign and domestic degrees in agriculture, business, physical sciences, computer sciences, and engineering have grown substantially. Here there may be competition for slots. In area studies, biosciences, education, fine arts, mathematics, psychology, and social sciencies, domestic declines have been compensated for in whole or in part by foreign degrees. Foreign language degrees have declined for both groups.

At the master's level, both domestic and foreign degrees increased in agriculture, business, computer science, and the health professions. There might be competition for positions in these fields. Foreign students seem to compensate for declines in domestic students receiving degrees in most of the other fields, including engineering. At the doctoral level, growth for both domestic and foreign students occurred only in agriculture, architecture, computer science, the health professions, and psychology (of the larger fields). At this level, both business and engineering degrees to domestic students declined between 1976 and 1982.

By 1982, salaries for engineers at the bachelor's level were so high that few Americans had the incentive to study beyond the bachelor's degree. Similarly, MBA salaries were high enough to dissuade U.S. students from pursuing the doctorate in business. Yet by looking at total advanced degrees awarded to engineers, one could be convinced that sufficient supplies were forthcoming, unless it were clear that many of those receiving master's and doctorates in engineering would take their degrees and work abroad. However, based on a recent analysis of Michael Finn of the Oak Ridge Associated Universities, this does not seem to be the case. Finn found that 62 per cent of the foreign nationals who received engineering master's degrees in 1981 were employed in the United States (Finn, 1985). At the doctoral level, 50 per cent of the foreign engineers with temporary visas and 62 per cent holding permanent visas were employed in the U.S., following their graduate study in American universities.

In most of the fields where foreigners have compensated for declining domestics enrollments, job markets have dictated student choices, particularly at the advanced degree levels. Whereas some fields may be temporarily saturated in the United States, demand may still be strong abroad.

Summary and Conclusions

This study has made two major contributions to understanding the significance of the scale and composition of flows of foreign students to the United States. First, it compares the academic characteristics of foreign students to those of domestic students; second, it presents important data on some of the *socioeconomic* characteristics of foreign students that have not previously been presented in the context of foreign student issues. The kinds of data in this study will permit academic policymakers to assess more effectively the impact of foreign students on different types of institutions, located in different parts of the country, and on different fields of study. It will also enable policymakers who deal with foreign student flows in the context of Third World human resource problems or from the point of view of international relations to make more informed decisions about possible interventions to modify the composition of those flows.

Using the data from the Higher Education General Information Survey (HEGIS) and the Cooperative Institutional Research Program (CIRP), we have carried out a study comparing non-resident foreign students (referred to here as "foreign students") with the rest of the U.S. student population (in the case of the HEGIS data) or with two groups of "domestic" students, that is, U.S. citizens and resident foreigners (in the case of the CIRP data). While the differences among all three groups are surely very important from the standpoint of certain academic policy issues, for present purposes the comparison of "foreign students" and all other "domestic students" is of central significance. In the CIRP, sponsored by the Graduate School of Education at UCLA and the American Council of Education, all first-time full-time freshmen are surveyed. The HEGIS survey is completed by institutional officials, rather than students. We compared CIRP data for the years 1972 and 1982 and HEGIS data for 1976 and 1982, and were therewith able to establish a number of trends. Some of the major findings are summarized below.

General Characteristics

1. *Gender*. Overall, the college freshman population had slightly more males than females in 1972 and slightly more females than males in 1982. Among foreign freshmen in 1972, 75 per cent were male, while in 1982, 62.1 per cent were male. Although the ratio of males to females among foreign freshmen has changed considerably, the difference between foreign

and domestic students is still large, reflecting the traditional greater investment in the education of men than of women in the developing countries.

2. *Family Background*. Between 1972 and 1982, there was a general increase in the father's educational level, both for foreign students and for the total population of students. Among all the groups under review, the group with the highest proportion (60 per cent) of college-educated fathers was foreign freshmen. Considering the very low proportions of the population in most developing countries that reach the university level, the proportion of foreign freshmen with college-educated fathers is very striking. American colleges and universities are evidently increasingly educating the children of the upper classes of other countries. Also, the data show that many foreigners who come to the United States for undergraduate education are from wealthier families than the average freshman.

3. *Personal Goals*. A shift from altruistic values to more individualistic values is seen for foreign students as well as for the greater proportion of domestic students. However, it can generally be said that this trend is less pronounced in the foreign student population. For all students, there has been a shift from the far left and liberal points of view to the conservative end of the political spectrum, and among foreign freshmen there are fewer taking middle-of-the-road positions.

Selection of Institutions

Among all freshmen, a key factor in choosing an institution is the school's academic reputation. The recommendations of significant others play a role in the decisions of all students, but families exert a greater degree of influence over the decisions of foreign students. Fewer foreign students than domestic ones choose their college on the basis of low tuition; since all foreign students must pay out-of-state tuition in public colleges, the cost variation for them is less than for domestic students. Moreover, tuition comprises a smaller fraction of the total cost of higher education for foreign students, who must travel to the United States, purchase new clothes, and so on. By contrast, the proportion of foreign students who see financial assistance as a very important factor in decisions was 34.4 per cent, nearly double that reported in the national norms (17.5 per cent). Despite their apparent relative affluence, foreign students still rely on financial aid to a great extent for several reasons: the high cost of obtaining an education in a U.S. college or university because of the distance from home; the fact that even members of the upper classes in some less developed countries earn relatively little by U.S. standards; exchange rate fluctuations; and the difficulty, in many instances, of taking money out of their countries.

Enrollments

1. *Regional Differences*. Foreign undergraduates have enrolled increasingly in institutions in the West-Southwest and Southeast and are over-represented in the overall student population in the West-Southwest. Climatic factors may be involved, as well as the information factor, in that

students from a particular country who enroll in an American institution will pass on information to their compatriots planning to study in the United States, thereby increasing the flows to particular regions and / or institutions. Foreign graduate students are more inclined than undergraduates to select schools on the basis of institutional or departmental strength, just as their American counterparts do.

2. *Enrollment and Full-time Equivalent Counts*. The implications of foreign enrollments are best understood in terms of full-time equivalent figures. Full-time equivalent figures are derived from a formula which gives different weights to students depending on their academic level and the number of hours for which they are enrolled. Because there are relatively few part-time foreign students, full-time equivalent figures are higher than head counts. Conceptualizing the proportion of foreign students in this way, and the resulting upward shift in their student share, indicates that they are generally more expensive to educate than their American counterparts. In public institutions, the FTE figure boosted the percentage of foreign students from 1.7 per cent to 2.7 per cent. For 1982, by headcount foreign students in public institutions constituted 2.2 per cent of the total population, but the FTE figures almost double the proportion to 3.9 per cent. The same pattern is evident in private institutions, though the FTE figures are even higher. In 1976, the FTE percentage was 4.5 per cent; in 1982, 5.9 per cent.

Almost 80 per cent of domestic students are enrolled in public institutions, while only 66 per cent of foreign students are enrolled in these schools. Since foreign students must pay out-of-state tuition at public institutions, the price differences between public and private schools are narrower for them, i.e., private institutions are relatively cheaper for foreign students than for domestic students.

Since foreign students are more likely to be full-time and graduate students, and since these types of students demand more resources, they are, as suggested above, more expensive to educate. The cost implications are likely to be most significant for universities, where full-time graduate students typically enroll. In sum, the typical foreign student partakes of a more expensive postsecondary educational experience than does the typical American student. To the extent that foreign students pay for the costs of their education in the United States, they may be serving to make up for the shifting characteristics of U.S. students. But if foreign students require subsidization, they are being subsidized to cover higher costs than those entailed by domestic students. (The extent to which foreign students compete with or replace domestic students will be dealt with further below.)

Student Quality and Institutional Quality

Based on reported high school grades, foreign students appear to be better students than American students. Also, foreign students appear to have higher performance expectations. At the same time, in 1982, a higher than average percentage of foreign students thought they would need special help in English, reading, social studies, science, and foreign language.

If schools are divided into three categories of selectivity (based on average

SAT scores), the data show a shift in enrollments, in percentage terms, away from high selectivity to middle selectivity institutions, on the part of both foreign and domestic undergraduate students. (In absolute terms, however, the number of foreign undergraduates at high selectivity institutions has actually increased slightly.) In 1982, a higher proportion (30 per cent) of foreign students received master's degrees than did domestic students (20 per cent), and the number of foreign students receiving MA degrees increased in institutions in all three selectivity categories. At the doctoral level, between 1976 and 1982, both domestic and foreign students shifted to some extent from top-quality to middle-quality institutions.

Career and Academic Goals, Probable Majors, and Degrees Awarded

Foreign freshmen were above the national norms in their desire to make theoretical contributions to science, to write original works, to create artistic works, and to be successful in their own businesses. By 1982, however, they had come to resemble the national norms more closely than in 1972.

The schools goals of foreign and domestic freshmen may be ascertained from CIRP responses. School goals have two major components: the field of study selected and the type of degree that is sought. Foreign residents among the freshmen were similar to the total freshman population in their interest in business, engineering and the health professions, while their interest in the social sciences exceeded that shown in the national norms. With regard to degree aspirations, in the national picture, the most significant change between 1972 and 1982 was in the proportion of students who intended to earn master's degrees. The most significant changes in the aspirations of non-resident foreign freshmen were a decrease in those intending to end their education with a bachelor's degree and an increase in students planning to obtain a doctoral degree.

In looking at the fields of study of domestic and foreign students, a key issue is whether foreign student enrollments serve to replace American students in fields and at degree levels where American student interest is low or whether they add pressure to fields that are already overcrowded. To put it another way, are foreign students space-fillers or competitors?

The disciplines in which foreign *undergraduate* students may be competing for limited spaces are computer science, engineering, agriculture, communications, business-management, and physical science. But the more common role of foreign undergraduates appears to be compensatory, i.e., they are replacing domestic students in areas of declining domestic demand: social science, fine arts, area studies, home economics, education, and mathematics.

At the *master's* level, computer science is one of the few fields in which domestic degree awards increased, and in this field foreign MA students have played a competitive role. This is true also for agriculture, business, and the health professions. In many other areas, like engineering, psychology, communications, architecture, fine arts, physical science, mathematics, area studies, social science, foreign language, letters, and education, the fill-in role of foreign MA's is evident.

At the *doctoral* level, foreign students account for a greater proportion of the degrees awarded than at the master's or bachelor's levels. It is important to note, however, that in all fields except biology, in which there were increases in doctoral awards overall, there were increases in both foreign and domestic candidates. (These fields with increases include the health professions, home economics, public affairs, theology, agriculture, fine arts, and computer science.) Some fields show declines in doctoral degrees awarded to both domestic and foreign students (foreign language and social science, especially). Finally, there are fields in which domestic declines are paired with foreign increases: education, library science, communications, area studies, mathematics, and business/management.

Conclusion

Overall, foreign students are a small factor in American higher education. They are more similar to than different from American students in many respects. The tuition they pay in public institutions more closely reflects actual costs than what is paid by domestic students, and they often fill empty seats not sought by Americans. Even in fields with domestic shortages of students, foreign students are not keeping domestic students out. Rather, they are taking slots that locals cannot afford to take, because of salaries available in the workplace.

It is apparent that foreign students are not perfect substitutes for domestic students in American colleges and universities. They have different aspirations and needs, and different patterns of enrollment. In many ways, they resemble domestic students of decades earlier, as they tend to come from high socio-economic status, attend full time, go on to graduate work, and select traditional letters and science fields.

Foreign students pay tuition, and in public institutions, the out-of-state tuition they pay more closely reflects actual cost. They do appear to depend upon financial aid, however. Also, international students often fill empty seats not sought by Americans. Thus, foreign students can serve to support U.S. colleges and universities during a time when domestic enrollments are declining and choices of major field of study changing. Even in fields where there are domestic shortages, such as engineering and computer science, foreign enrollees are not keeping domestic students out, but rather are taking slots which locals cannot afford to take, given the salaries available in the workplace. Particularly at the undergraduate level, foreign students do not seem to be putting pressure on our highest quality institutions.

Moreover, it must be kept in mind that the overall impact of foreign students on American higher education is minute: in 1982, 22,631 bachelor's degrees went to foreign students, with 924,246 awarded to citizens. Another 22,000 (out of 275,000) master's degrees and 4,200 (out of 29,000) doctorates also went to foreigners. Although clearly more represented in certain fields than others, foreign students are a small factor in American higher education. They tend to need more and different types of help, and at times they enroll in fields where education is relatively costly.

Yet overall, it appears that similarities between foreign and domestic students outweigh differences. It is important to look at data that are disaggregated, and not to consider all foreign students as one homogeneous group. We have attempted to discern how foreign students differ among themselves and from domestic students.

Virtually every college and university in the United States and the departments and programs in them face perplexing policy decisions regarding foreign students. Students from abroad represent a substantial potential demand for seats in U.S. college classrooms. They are also likely to alter the supply conditions of American higher education by imposing new or different costs on the institutions that host them. Although both the demand and the supply situations mean that the price (tuition) to foreign students could vary significantly from that to domestic students, decisions about the acceptance of foreigners are generally made with the assumption that tuition rates will be the same for domestic and foreign students.

Thus, decisions about foreign students are made by colleges and universities based upon one or more cost-benefit analyses. One question of costs is whether or not the tuition revenue derived from a foreign student covers (or more than covers) the costs of educating him or her. This in turn depends upon the tuition level and whether the new foreign student fills an existing empty space in the class or requires that an extra seat (or section) be added. The answer may be a function of the field of study. Another aspect of the differential cost of educating a foreign student compared to a domestic one is related to the prior preparation of each and the special needs of the foreign student. The answer may depend on how similar or different foreign and domestic students in fact are.

The benefit side is based in part upon net tuition actually paid by foreign students. To what extent does a foreign student pay more than a local one (e.g., out-of-state tuition), and is there a chance that the foreign student may not be able to pay his or her stated tuition? There have been some cases of foreign students running short of funds as exchange rates vary or foreign governments cut off support or restrict the transmittal of funds out of the country.

Cost-benefit analyses raise yet other issues, like the extent to which foreign students enrich the classroom experience for all students or slow down the progress of all. These issues, as also such questions as our nation's responsibility for educating students from other countries, or the potential payoffs (social and economic) to the United States of having graduates from our institutions located around the world, are beyond the scope of this report. However, the greater understanding of similarities and differences between foreign and domestic students provided in this study should help institutions to evaluate the costs and benefits of foreign students when deciding how many of them to admit. The data we have reviewed gives us little reason not to welcome foreign students to our institutions of higher education.

References

American Council on Education. (1972). *The American freshman: National norms for Fall 1972*. Washington, D.C.

Astin, W. A., Hemond, M. K., and Richardson, G. T. ((1982). *The American freshman: National norms for Fall 1982*. Los Angeles: American Council on Education, UCLA.

Committee on Foreign Students and Institutional Policy. (1982). *Foreign students and institutional policy: Toward an agenda for action*. Washington, D.C.: American Council on Education.

Finn, M. (June, 1985). *Foreign national scientists and engineers in the U.S. labor force, 1972–1982*. Oak Ridge, TN: Manpower, Education, Research and Training Division, Oak Ridge Associated of Universities.

Institute of International Education. (1972, 1976, 1982). *Open Doors*. New York.

Solmon, L. C. and Gordon, J. J. (1981). *The characteristics and needs of adults in postsecondary education*. Lexington, MA: Lexington Books.

Solmon, L. C., Ochsner N. L. and Hurwicz, M. (1979). *Alternative careers for humanities Ph.D.'s*. New York: Praeger.

Zikopoulos, M. and Barber, E. G. (1986). *Choosing schools from afar*. New York: Institute of International Education.

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